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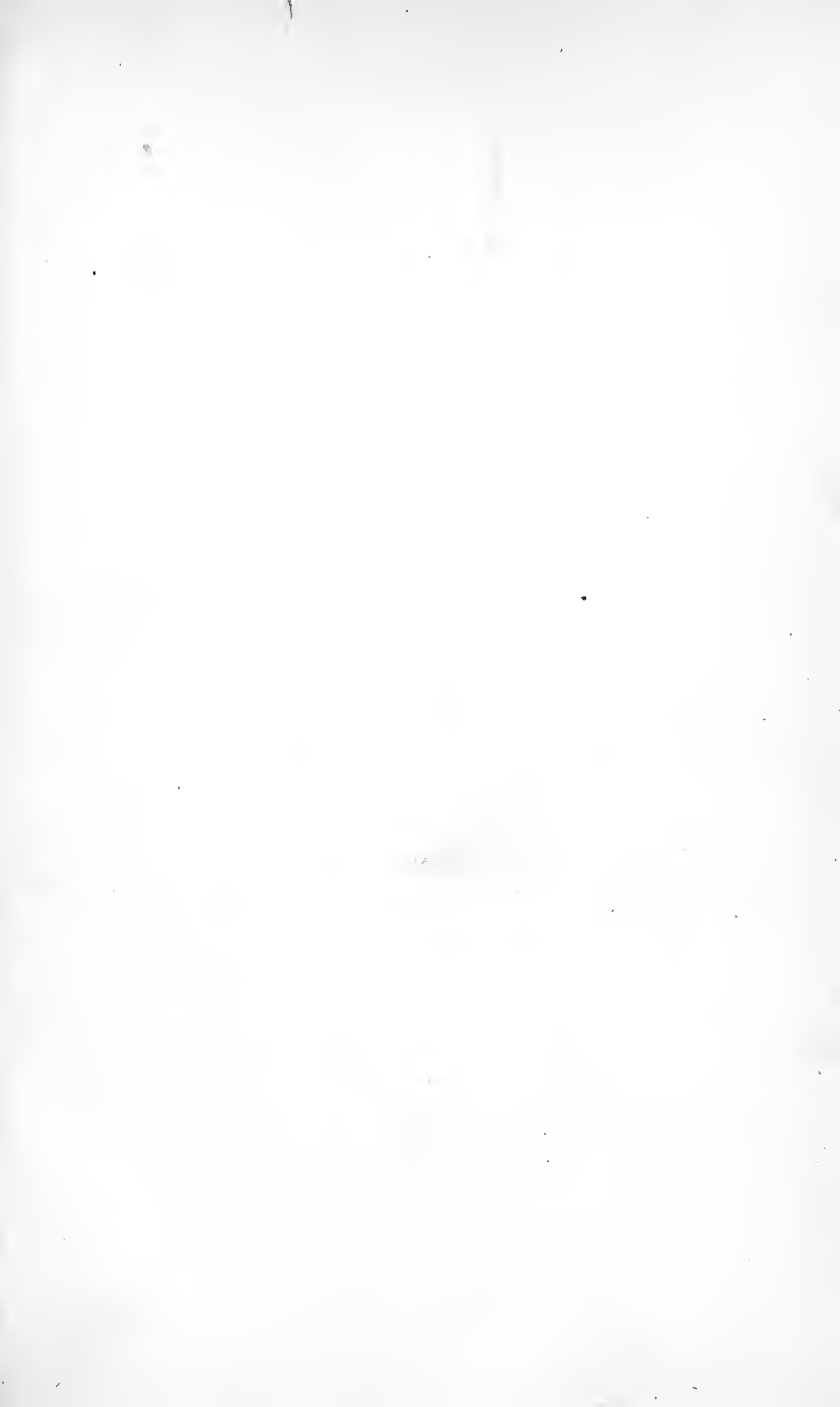
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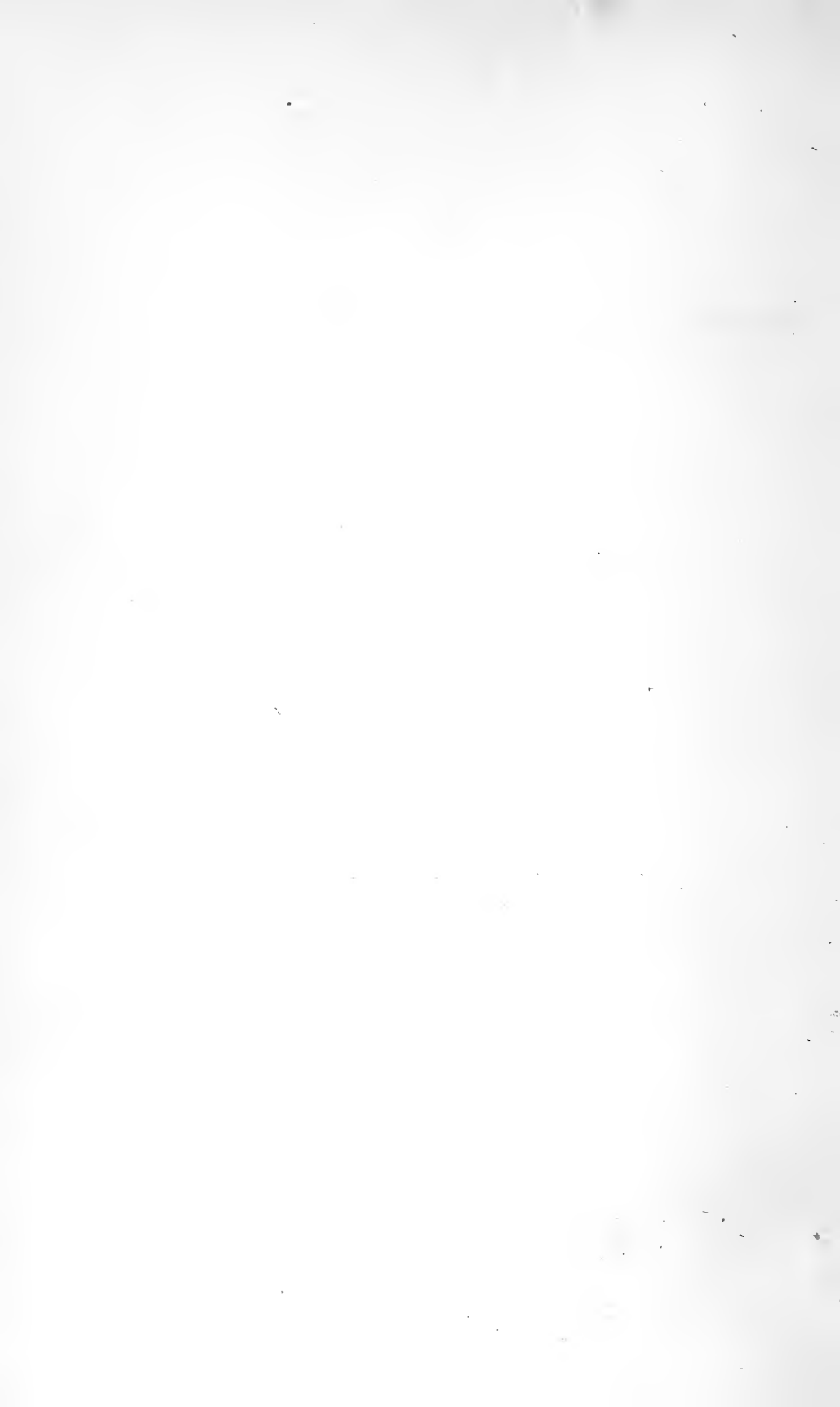


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THE

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1887

PHOTOGRAPHER.

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## EMBELLISHMENTS.

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- January 1st.*—Miss Charlotte Behrens as "Zitka." By D. H. ANDERSON, New York. Silver print, by ROBERTS & FELLOWS, Philadelphia.
- January 15th.*—"The Old Fiddler." By LOESCHER & PETSCH, Berlin. Phototype print, by F. GUTEKUNST, Philadelphia.
- February 5th.*—"Portrait Group." By P. H. ROSE, Providence, R. I. Silver print, by ROBERTS & FELLOWS, Philadelphia.
- February 19th.*—"We are Ready." By E. WELLER, Laporte, Ind. Photogelatine print, by the PHOTOGRAVURE Co., New York.
- March 5th.*—German Gems. By SCHULZ & SUCK, Karlsruhe. Silver print, by ROBERTS & FELLOWS, Philadelphia.
- March 19th.*—"The Old King." By Miss MAY C. WILSON. Photogravure print, by the PHOTOGRAVURE Co., New York.
- April 2d.*—"Sweet Spring." By G. M. DEANE, Galveston, Texas. Silver print, by ROBERTS & FELLOWS, Philadelphia.
- April 16th.*—"Solicitude." By WM. W. CHAPIN, Rochester, N. Y. Photogelatine print, by the PHOTOGRAVURE Co., New York.
- May 7th.*—A German Portrait Study. By SCHULZ & SUCK, Karlsruhe. Silver print, by ROBERTS & FELLOWS, Philadelphia.
- May 21st.*—"La Magdalene." By CHAS. BUTTERWORTH, Wilmington, O. Photogravure print, by the PHOTOGRAVURE Co., New York.
- June 4th.*—"A Child Study." By F. W. GUERIN, St. Louis, Mo. Silver print, by ROBERTS & FELLOWS, Philadelphia.
- June 18th.*—"A Sad, Sad Story." By C. PIETZNER, Teplitz. Phototype print, by F. GUTEKUNST, Philadelphia.
- July 2d.*—Child Study. By J. LANDY, Cincinnati, Ohio. Silver print, by ROBERTS & FELLOWS, Philadelphia.
- July 16th.*—"Threshing Time." By C. E. ORR, Sandwich, Ill. Photogelatine print, by the PHOTOGRAVURE Co., New York.
- August 6th.*—"Brunhild"—A Study. By D. B. VICKERY, Haverhill, Mass. Silver print, by ROBERTS & FELLOWS, Philadelphia.
- August 20th.*—Scene from the "Taming of the Shrew." From electric light negatives. Photogravure by the PHOTOGRAVURE Co., New York.
- September 3d.*—Cape Town. By LULU FARINI, Bridgeport, Conn. Silver print, by ROBERTS & FELLOWS, Philadelphia.
- September 17th.*—"The New South." By E. E. BROWN, Asheville, N. C. Ives Photoengraving, by the Crosscup & West Engraving Co., Philadelphia.
- October 1st.*—Portrait Studies. By N. SARONY, New York. Silver print, by ROBERTS & FELLOWS, Philadelphia.
- October 15th.*—Market Day at Karlsruhe. By OSCAR SUCK, Karlsruhe. Phototype by F. GUTEKUNST, Philadelphia.
- November 5th.*—View in Elwood Rauch, Cal. By Dr. EDWARD H. WILLIAMS, Philadelphia. Silver print, by ROBERTS & FELLOWS, Philadelphia.
- November 19th.*—Rockwood's "Triplex" Cabinet Portraits. By G. G. ROCKWOOD, New York. Ives Photoengraving by the Crosscup & West Engraving Co., Philadelphia.
- December 3d.*—"A Study Fair." By H. McMICHAEL, Buffalo, New York. Silver print, by ROBERTS & FELLOWS, Philadelphia.
- December 17th.*—"Photographic Trophy." By F. GUTEKUNST, Philadelphia. Phototype print, by F. GUTEKUNST, Philadelphia.

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O. D. Anderson

New York

Miss Charlotte Behrens  
"ZITKA"

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THE

# Philadelphia Photographer.

EDITED BY EDWARD L. WILSON.

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Vol. XXIV.

JANUARY 1, 1887.

No. 289.

## A HAPPY NEW YEAR.

THIS is our sincere wish for our patrons, one and all. It is our sincere belief also, that the happiest photographers during 1887 will be those who receive the semi-monthly numbers of this magazine as quickly as possible after they are issued.

What we have promised you should be included in those numbers, ought to be sufficient to reassure you, yet we are warranted in saying that additional arrangements will enable us to do much more than we have promised.

It is not of much avail to look back upon the past. There is hardly time for it. Yet we will say, right here, that our removal to New York has been a good one. It has enabled us to give our undivided attention to our magazine; to give our readers twice as much for their money as in former years, and, we believe, a great deal better material. We have, therefore, had much pleasure and satisfaction from the change, and we propose to continue it with even greater effort to keep this magazine at the head of its class. To make our work more wide-spread is our desire, and to do this we must depend upon you.

You can send us lists of the addresses of camera-workers whom you know, for, be assured, we do not know a tithe of them. You can avail yourselves of our premium offers, and, in addition to your own subscription, send us one or more new ones.

At this season of the year our subscription list is like a used developer. It needs strengthening. We have not the wherewith to do this. That is your work. And the better it is attended to, the better will be the results. As they develop, so shall thy strength be, is the injunction we stand ready to accept from you. To hesitate, is to neglect an old magazine that has helped you and your children to the news of your art for nearly a quarter of a century.

As to the outlook for the future—the prospect of a happy New Year, we think it is a good one. There is a feeling in the air, such as one experiences after quite a long season of inactive camp-life. The dull monotony is broken, and we are on the move, and on the improve. From our observation window we can see the indications of better things coming. Old things are to be dropped by the wayside as we march along; old contests—cutting of prices—careless habits—inferior work, and so on, and new vigor and push put forth, for improvement and profit. There will be battles to fight—drawbacks too, as usual, but there will be many victories also. Pluck and push and persistence will win, and a happy, prosperous year will follow.

Photography has not taken one backward step as yet. If its votaries would remain as stiff-kneed as it does, what wondrous successes would follow. We know this is “hard, when all sorts of men enter the business,” but then your best personal efforts

will do much toward making it a happy New Year.

## PHOTOGRAPHY THE HANDMAID OF THE PHYSICAL SCIENCES.

BY REYNOLD W. WILCOX, M.A., M.D.

THERE is no physical science of which it can be more truly said that it is the handmaid of all others, than of photography. Based as is the science of photography upon optics and chemistry in its larger part, yet both optics and chemistry have been advanced by it. In chemistry especially, the reactions of various compounds with each other have, through its influence, been more carefully worked out, reactions often gross, easily detected by the senses; but as well the reactions of the silver compounds, when the fleeting sunbeam or the glare of the electric arc have left their subtle, but lasting impression—changes so subtle that even their very nature is to-day a matter of conjecture and discussion. Nor are we limited to those objects within our grasp, but, thanks to photography, with spectrum analysis the distant stars reveal their composition as clearly and as surely as if their substance could be placed in the test tubes of an expert chemist. During eclipse of the sun, its corona has been studied by spectrum analysis and photography. The modern dry plate, allowing of instantaneous views, and improved lenses, permitting the use of a shorter tube, have simplified the necessary processes. Much work has been done in photographing double stars and nebulae, and lately a systematic mapping out of the whole heavens by photography has been proposed. In optics, careful studies of refraction, practical workings out of formulas have been made; but the rapid gelatine dry plate of to-day has obviated in a large measure the necessity for study of lenses in regard to rapidity, so that, in this direction at least, relatively, photography will not make as steady advances as in others. Need it be recounted how botany, geology, mineralogy, and zoölogy, vertebrate and invertebrate, are indebted to photography for accurate and calm portrayal of facts? One need only to refer to text-books

and monographs on special subjects—the more recent the more positive is the evidence. Not in photography alone, but as well in the many and allied processes for manifold reproduction do we find science's most eager and efficient handmaid.

In noting the advance of physical truth as it has been brought about by the student in his library, the worker in his laboratory, it is well to ask how much this advance has been brought about by photography. On looking through the list of members of the Society of Amateur Photographers of New York, one can hardly fail to realize how various are the vocations of those whom photography counts as her devotees. In many cases, doubtless, the aid that photography could give in the pursuit of chosen study was the ruling motive for its practice. How many instances too are there of photography, having been adopted only as an assistance, becoming a ruling passion, overshadowing in its extent the former occupation.

In the science and art of medicine, photography has been an efficient aid, but principally in the grosser and more pronounced fields. The ingenuity of the French, assisted by the rapid plate of to-day, has served to accomplish an apparently impossible feat, the photographing of a human larynx both at rest and in performance of its functions. In diseases of the skin, thanks to the painstaking work of Piffard, we have accurate portrayal of distribution and configuration of lesions. Orthochromatic photography, so called, if it is ever attained, will allow this method of illustration to supersede all others. Thompson, by means of an ingeniously contrived apparatus with which he can make six views per second, has photographed the hearts of various animals—kittens, rabbits, pigeons, dogs. While this has thrown much light upon the normal workings of the heart, it has also permitted the action of certain drugs (glonoin, chloral) upon the heart to be observed. He has also studied the normal movements of the intestines.

In remedial surgery—the surgery of deformities—the vivid imaginations, stating it mildly, of optimistic men have been curbed, and that department has received

valuable and permanent advantage from the employment of photography. Yet even now the illustrations of "Before and After" bear striking resemblance to the wood-cuts frequently found in the advertising columns of our daily press. In the department of nervous diseases, the work of Charcot, valuable as it is, has been made of greater importance because of his use of photography in the illustration of his monographs and lectures. Successful teaching in medicine means appealing to the eye as well as to the ear, and his photographs of patients in various stages of hysteria and hystero-epilepsy are more eloquent, and make greater impression upon the physician, than pages of most interesting and carefully written text. The "Iconographie Photographique de la Salpêtrière," by Bourneville and Regnard, will endure as long as the science of medicine itself, as an example of the accurate and complete aid that photography can give to medicine. The physiognomy of disease, notably of mental disease, has been carefully portrayed by several workers in that special department, notably the plates of Hamilton, giving typical illustrations of insanity.

In one field we must acknowledge great disappointment, in that what seemed reasonable expectations have not yet been realized, namely, in the photographing of microscopic objects. When only a few years since it was demonstrated that no especially constructed apparatus was necessary, but that with almost any good microscope, the eye-piece being removed, the tube fitting closely in the lens board of the camera, photographs could easily be taken, it was earnestly hoped that a new impetus would be given to investigations of healthy and diseased tissues. But little has been done, and to-day there lies open an almost unexplored field for the future worker.

In closing I would impress upon the reader the great work that every experimenter and every investigator is doing for photography, in that not only does he contribute to its advancement, but as well, indirectly, places every worker in physical science under obligation to him.—By courtesy of the AUTHOR from *Anthony's Bulletin*.

## ON PHOTO-MICROGRAPHY.\*

BY W. H. WALMSLEY.

I CONFESS to some feelings of hesitation in appearing before you this evening, with a paper on the above subject. "Walmsley's Bugs," as some facetious fellow members have dubbed my occasional displays of microscopic objects, projected upon the screen by means of our optical lantern, may not prove to be an interesting theme to many of you, although its scope is boundless. But having been honored by an invitation to read a paper here, I think it proper to choose a subject with which I am somewhat familiar, even at the risk of presenting one which may not be of special interest to all of you. If, however, I can be instrumental in turning the attention of even a single member toward this delightful branch of photography, I shall be amply recompensed for the slight labor involved in so doing.

During the winter interregnum, when out-door work with the camera is generally uncomfortable, if not impracticable, we recall our past summer's experiences by making prints and lantern slides, from the negatives obtained at that time; and many a pleasant day is repeated in retrospection thereby. Thanks to the general introduction of bromide paper, we are rendered independent of daylight for this work, a great boon to those whose only leisure comes in the long evenings of winter. The making of a negative is, however, to very many, even a greater pleasure than the print therefrom, and I venture to assert, that more than one now present, has many negatives in his possession from which he has never made a print, and probably never will; yet the desire to produce more negatives is never satiated. To such, the field presented by photo-micrography is an attractive one, full of novelties, of boundless scope, and readily entered upon by all.

Many of our members were but a few short years ago enthusiastic microscopists, until lured from their first love by her younger and more attractive sister, photog-

\* Read before the Photographic Society of Philadelphia.

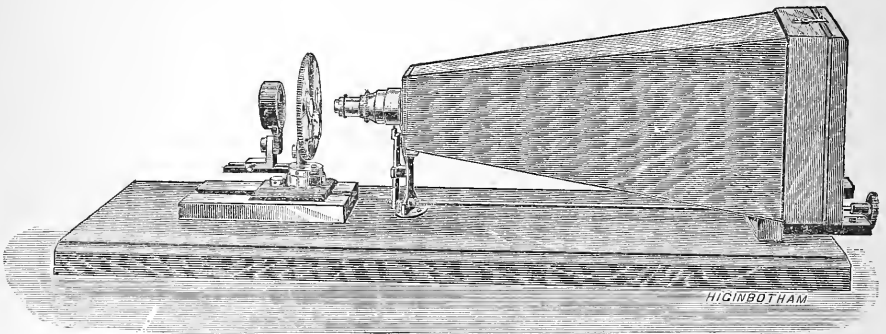
raphy. Most of them retain their now unused microscopes and cabinets of prepared objects. They have all the necessary materials and appliances for combining the science and practice of microscopy with the practice and art of photography, and could produce work which would be of practical and educational value to themselves and others, if they would only do so. A general advance in this direction is being made all over our own country, as well as in Europe, and I should be greatly pleased to see members of our own Society joining therein.

The most simple method of making a photo-micrograph, is by means of a small camera or box, carrying a sensitized plate placed above the eye-piece of the microscope. My first work of this kind was done with the so-called Pocket Camera of Walker; a small square box without bellows, carrying a plate  $2\frac{3}{4} \times 3\frac{1}{2}$  inches, the focussing of which was effected by sliding the tube carrying the lens in an outer one, fitting it loosely enough for that purpose. Whilst examining the eyeless flea of the mole, one winter's even-

which will be shown on the screen during the evening. This was my first photo-micrograph, and opened up a new field, which I have since cultivated with both pleasure and profit.

This method of using the camera has since been elaborated by Dr. Mercer, of Chicago, and a little instrument bearing his name, attachable to any microscope, is now a regular article of sale by photographic stockdealers. It is a valuable addition to the accessories of a microscope, especially so to the biologist, who frequently in his researches finds some subject, the preservation of whose outlines would be of great value, but which undergoes such rapid changes that no time must be lost in so doing. With camera and ready charged plate-holder at hand, an exposure can be made in a minute or two, and valuable details secured, which would otherwise inevitably be lost. The field of view, however, is extremely limited; only the centre of the very small plate is illuminated, and the entire results are of a temporary and unsatisfactory nature.

FIG. 1.



ing, I was seized with a longing to photograph it. Acting upon the impulse, I removed the lens tube from this little camera, and found that the outer one, attached by its flange to the front of the box, exactly fitted over the eye-piece of my microscope, throwing a brilliant and sharply-defined image of the flea upon the ground-glass. A plate holder and plate were quickly substituted for the latter, and exposure made by guess work; the result being a fairly good negative, from which a lantern slide was subsequently made by contact printing,

Later, Mr. H. F. Atwood, of Rochester, devised an apparatus for this purpose, combining both microscope and camera in one. Upon a solid platform is placed a cone-shaped box, having at the large end, a focussing screen and plate-holder, whilst the smaller end is terminated by a short brass tube with society screw, carrying any ordinary microscope objective. The focussing is effected by means of a rod passing under the body of the box to its rear, and terminating in a milled head. The glass slide carrying the object, is clamped upon a cir-



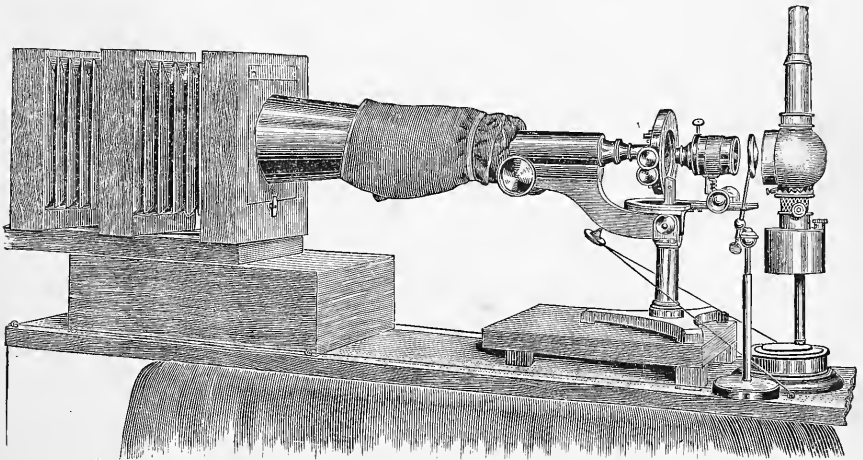
cular stage firmly fixed in front of the object glass; the illumination being from a lamp placed behind the stage, the direct rays from which are utilized without the intervention of any mirror. This is a fairly effective piece of apparatus, its chief defect consisting in the absence of a bellows-body; the focussing screen and plate-holder remaining at a fixed distance from the object, requires a change of objectives for any necessary change in the amplification. It answers the purpose of its design fairly well, but cannot be recommended for general work.

Following my first experience with the Walker box placed over the eye-piece, the next advance in a practical direction was the employment of an ordinary view camera mounted on a tripod, and with the lens un-

The result of the first exposure with this contrivance (the subject being the tongue of a drone fly), was a negative full of detail, a vast improvement on my first attempt, but with a decided "ghost" in the centre, which you may see for yourselves, as it will now be passed around.

Since no authorities at my disposal threw any light upon even the existence of this "ghost," I was forced to seek its cause for myself, which I soon succeeded in doing; tracing it to reflections from the interior surface of the microscope tube. A cylinder of paper, covered with dead black velvet, or wool flock, placed within the body of the microscope, completely exorcised my ghost, and I was troubled by it no more. And here it will be proper to say that in using

FIG. 2.



screwed from the flange upon its front. The microscope was placed upon a table with the body inclined to a horizontal position, the eye-piece removed, and the tube inserted into the body of the camera through the open flange; the tripod being adjusted at a proper height and position to suit the table. The entrance of extraneous light into the camera, through the open space between the tube and flange, was prevented by a piece of blackened cardboard made to fit tightly to the microscope body. The lamp was placed on the table in the rear of the stage, and its light condensed upon the object by means of a bull's eye upon a separate stand.

any microscope for photography, with a body from which the eye-piece has been removed, it will be necessary to thus line the interior with some non-reflecting material, to prevent the occurrence of ghosts in the negative. If, however, the exposure be made through the eye-piece, the lining will not be necessary.

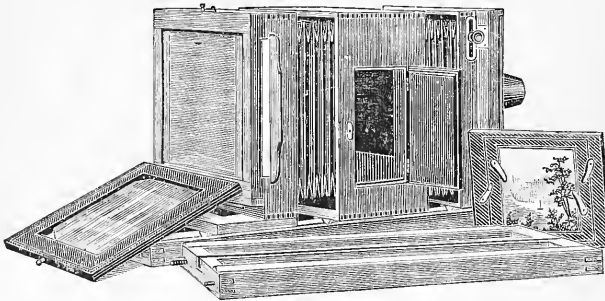
The defects of this form of apparatus speedily became apparent. The bellows extension was not sufficient to give much of a range of magnifying powers with any given objective; the tripod was not steady enough to permit the use of any but very moderate powers; whilst microscope and

camera being carried upon separate supports, were not equally effected by any jarring of the building by passing vehicles, or other causes; the result generally being, negatives somewhat blurred, and wanting in the crisp sharpness which the image presented upon the focussing screen. This led to the abandonment of the tripod, and the placing of camera, microscope, and lamp upon a common platform, so that any tremor or motion was distributed alike to all parts of the apparatus, completely curing the blurring trouble.

The practicability of photographing microscopic objects by lamp light, even with very high powers, having been fully demonstrated, improvements in the form of apparatus and methods of manipulation followed. A special camera was devised, with a cone-shaped front, to receive the microscope tube, and with the bellows in two or more divisions, allowing a long extension of the same, when increase of power was necessary; since, the farther the plate is removed from the object, the greater the amplification.

is required. The central section of the camera is fitted with a removable division to which an ordinary rectilinear lens can be attached; access to which is had through a small, light-tight door in the side of the box. The cone front may also be removed, and its place supplied with a board carrying a flange, to which the lens may be screwed; thus converting the box into an excellent copying camera. Kits to carry either half or quarter-sized plates, vertically or horizontally, are also supplied with this front, with any given objective. The box and plate-holder were square, so that the plate could be exposed in either horizontal or vertical positions, as best suited the object upon the stage, without having to reverse the camera. The holder itself was a single one (for reasons to be given hereafter), carrying a half-sized plate ( $4\frac{1}{2} \times 5\frac{1}{2}$ ), and furnished with a kit for using a quarter-sized plate, when the latter should be necessary. This camera was firmly attached to the platform upon which microscope and lamp were placed, and the whole apparatus

FIG. 3.



I used it for more than a year, without modification, and remember it with a certain degree of affection, even in the presence of the more perfect and elaborate outfit which has supplanted it, and which I have the pleasure of exhibiting to you this evening.

In this improved form of camera the general features of its immediate predecessor have been retained. Size and shape remain the same, but the long V-shaped ways upon which the bellows slide are made in two sections, for greater convenience in manipulation when only a short extension

was eminently practical and efficient. The back is double shifting to allow the placing of any desired portion of a negative in proper position, when a lantern positive is to be made. In short, the camera is now a most excellent enlarging, reducing, and copying one, in miniature, replete with every convenience and appliance to be found in the largest copying boxes made especially for that purpose. It is no longer necessary to make the negatives with a view to printing lantern positives by contact; they can be reduced or enlarged to the proper size in the camera and are far sharper

and better in every way than those made by contact in the printing-frame.

Thus for the camera: a few brief remarks as to the microscope may not be amiss. Any stand, monocular or binocular, the body of which can be inclined to a horizontal position, may be employed. In using a binocular stand it is merely necessary to withdraw the prism sufficiently to allow all the light to pass up the straight tube, and thus convert the instrument into a monocular. The eye-piece may be removed or not, as the operator desires; the former plan being the one generally adopted and producing, so far as my own experience goes, the better results. If the eye-piece is not used, the tube must be lined with some non-reflecting material, as before stated. A mechanical stage is a great convenience and time saver in centering an object upon the ground-glass, but it is by no means a necessity; it should, however, revolve in the optical axis of the instrument if possible. A double or triple nose-piece, carrying as many object glasses of different foci is also very desirable, especially when high powers are to be used, as an object can be quickly brought into its proper position in the field of view under a low power, when by revolving the nose-piece, a higher one takes its place; and if the two are properly centered, the object will be found to occupy the same position in the new field of view.

The placing of the object on the stage of the microscope, and arranging it in such a position as to cast its illuminated image upon the centre of the ground glass focussing screen, are all to be done with camera closed up short, in which position the eye can readily see the image, whilst the hands reach the milled heads controlling the stage and focussing adjustments. But when the bellows are extended a foot or more this becomes impossible, and resort to some other method of varying the focus is necessary. The plan I adopted at first, and have ever since followed, was the old but effective one of a strong fine cord placed in a groove turned in the periphery of the milled head controlling the fine adjustment of the microscope, and passing through hook eyes on either side of the camera to its rear, where it is held taut by a couple of small leaden

weights. A very slight pull on either of these serves to change the focus in the most delicate manner, and this can be done whilst the eye is fixed upon the image on the ground glass.

I have used the term *ground glass* in connection with the fine focussing adjustment, but merely as a figure of speech. In reality, ground glass cannot be used for this purpose at all, as the very finest that could possibly be made is entirely too coarse to define sharply any delicate microscopic object. Its usefulness is confined to securing a full and even illumination of the field, and the arranging of the object in its proper position therein. These two essentials arrived at, we must abandon the ground surface in favor of something better adapted to giving a sharply-defined image of the magnified object. Many plans for effecting this have been published, but I shall at present notice only the two which I have used most successfully for some years. The first, which is useful for hurried work, consists in attaching to the centre of the ground surface of the focussing screen, by means of Canada balsam, a disk of thin microscopic covering glass about an inch in diameter. The balsam fills up the minute inequalities in the surface of the glass made by the grinding process, and renders the circle perfectly transparent. Now, if a Ramsden positive eye-piece, or any ordinary focussing glass adjusted to the thickness of the screen, be applied to the outer side thereof, the illuminated image will be seen clearly defined in this transparent circle with the most beautiful distinctness, when the proper focus is made with the adjusting cord.

This method, however, only allows that portion of the object which is in the centre of the field to be seen and focussed upon, whereas it is frequently desirable to go all over the same to arrive at the best average adjustment. For this purpose, I use the following plan, which is so perfect in its results that I can conceive of nothing better: A sensitized gelatine plate, evenly coated, is exposed to a flash of light, and placed in the developing bath a short time, until it becomes somewhat discolored, or clouded over, but not long enough for it to acquire any density. It is then washed and fixed as

usual; after fixing, and a prolonged washing, it is bleached with bichloride of mercury as for intensification, and again washed and dried, when it will be found to possess the finest surface for delicate focussing imaginable. And now comes in the use for the single plate holder, to which I have before referred.

Slide and back both being removed, the holder is reduced to a mere frame work, which is placed in position on the camera, the ground-glass screen having been lowered out of the way. The bleached gelatine plate is now placed in the holder (film side toward the image), where it occupies exactly the place that will subsequently be filled by the sensitized plate. The positive eye-piece, or focussing glass, being now placed against the outer surface of the plate, and the eye applied thereto, perfect definition may be effected by means of the focussing cords; the proper position of the image upon the plate, having been previously secured through the medium of the ground-glass.

A few words as to the objectives may not be amiss. For powers including one-quarter inch and higher, no special corrections are necessary. I have had most excellent results with the higher powers of very many of the best makers, both American and foreign; and even the cheap French triplet quarters, have produced very good work without further correction. But for all lower powers a special correction to render the actinic and visual rays coincident, become necessary for perfect work. The Messrs. Beck furnish all their lenses, from three inches to four-tenths of an inch, with a convex lens of suitable focus, set in the posterior part of the mounting, which makes a perfect correction, and a negative sharply defined as the image seen upon the focussing screen.

The proper illumination of the object is of the first importance, since, if we fail in this, all our other efforts are of but little account. Various sources of light are at our command: the direct rays of the sun, diffused daylight, the electric light in various forms, magnesium ribbon, or the oxyhydrogen jet, can all be used most successfully by those able to command time and apparatus. But my remarks at this time being intended

mainly for the benefit of those who have only their evenings at their disposal, I shall confine myself solely to the consideration of that illuminator procurable by every one—a good lamp, burning coal oil. Any form capable of being placed at a proper height to suit the stage of the microscope may be used, though some are undoubtedly better than others. The one I have adopted, and find eminently useful, consists of a broad flat reservoir, with large capacity, carried at any desired height upon an ordinary retort stand, and using a duplex burner, with the flames placed at an angle to the plane of the stage, in order to avoid the dark spot in centre of field, which always results if the flames present their edges to the object slide. The stage of the microscope should be provided with a set of diaphragms of various sizes, the arranging of the object being done with a large opening, whilst the exposure is made with the smallest which will properly and evenly illuminate the field of view. If desired a condenser can be used to concentrate the light upon the object; but for a long time I have entirely discarded its use with all powers lower than one-fifth of an inch, using the direct rays proceeding from the lamp alone. This gives a more evenly lighted field, and, although the length of exposure is somewhat increased, the resulting negative is better in every way than one made in a shorter time by a strongly concentrated light.

The difference, in fact, is very marked, and I would urge upon every one, using lamplight, to dispense with all condensers with moderate and low powers. With high powers, however, a condenser becomes necessary, and an achromatic combination of wide aperture, or one of the Abbé form may be used with the best results. Some operators use blue or ground glass for toning and diffusing the light. In short the subject of illumination is an exhaustless one, and I shall not attempt to pursue it further at present. Neither can I give any certain rules as to time of exposures. The length of these vary greatly with the nature and structure of the subject, so that every one must learn to determine this for himself, as in ordinary photographic work. Using a given objective, and with the same plates

and illumination, I have had exposures vary from ten seconds to five minutes, regulated entirely by the difference in the color and structure of the subject to be photographed.

Almost any make of gelatine plates may be used, though some possess the qualities best suited to this class of work in a much greater degree than others. Extreme sensitiveness, combined with density and strong contrasts are desirable, may necessary for most classes of subjects. Carbutt's specials, and the Seed plates are excellent; but the very best for the purpose I have ever used are the "Diamonds" made by Richardson, of Leominster, Mass. They are extremely rapid, developing with great vigor and density, and have a very fine grain, so that the most delicate details are fully shown. And for all delicate structures, especially finely marked diatoms, I find it much better to develop for detail only; resorting to after intensification to obtain necessary density. By this means none of the finer lines or markings are obscured by too heavy a deposit; whilst the negative is quite as permanent as those not intensified, if it be first bleached in a solution of bichloride of mercury, and blackened by immersion in cyanide of silver, or a ten per cent. solution of sulphite of soda. Ferrous oxalate or pyro development may be used with equally good results. At first I favored the former, but of late years have in common with most others grown more and more accustomed to pyro, which with carbonate of soda, has given me results uniform in their success, and of a quality leaving little or nothing to be desired. I use no restrainer, excepting the sulphite of soda in solution with the pyro, the resulting negatives being uniformly of a pleasant gray tone, entirely free from the yellow stains so often associated with the use of pyrogallic acid.

For making prints, bromide paper is especially recommended. It can be used in the camera for enlarging or reducing; or be printed by contact, by day or lamplight as desired. It renders all delicate details better than albumen, the finished prints need not be mounted, for book illustrations they are perfect, whilst finally I think there can be no reasonable doubt of their absolute permanence. I will submit prints on both

kinds of paper for your inspection and criticism; some of those on the bromide being contact, and enlarged prints from the same negative. The smooth papers, A and B, of the Eastman Co., are recommended, and if a glossy surface is desired, it may be obtained by squeegeeing the print upon a sheet of polished hard rubber, from which it will peel off with a glazed surface when dry, as seen in the specimens now submitted to you.

Since the making of transparencies from microscopic negatives differs in no wise from those of other subjects, I shall not detain you in alluding to them further than to repeat that reduction in the camera gives more satisfactory results than contact printing, and that this is the plan I almost invariably pursue, even if the negative be upon a quarter-sized plate.

It adds very greatly to the scientific value of a photograph of any microscopic object, if the exact magnification be measured and stated thereon. To do this separately with each exposure, would entail an expenditure of time and labor that few would care to assume, but if each objective be carefully measured with the camera closed, and also opened to the full extent of the bellows, and notes thereof preserved, it will be an easy matter to calculate the exact amplification used with each exposure. This measurement is very easily made. A stage micrometer ruled in 1-100 and 1-1000 of an inch is placed upon the stage of the microscope, and the image thereof focussed upon the ground glass, where the value of each division is readily determined. I would advise every one turning his attention to this branch of photography, to make such a series of measurements at the outset.

As previously stated, any microscope with a joint for inclination of the body to a horizontal position, may be employed in photography; but those having a short tube of large diameter will do better work than those with long ones. It is highly desirable that the rays of light, after passing through the objective, should be allowed to diverge as speedily as possible. Where they are confined to the limits of a long tube of small diameter, it will be found that only a small circle of light will be thrown on the ground glass when the camera is closed up

short, and that it must be lengthened to a considerable extent before the entire plate is illuminated. In order to overcome this objection, I devised, some years since, a stand from which the compound body may be entirely removed, and replaced by a cone-shaped tube which flares away from the back of the object glass, allowing the image-bearing rays to diverge at once after leaving the lens. This stand was made for me in the most satisfactory manner by the Messrs. Beck, of London, and has since done eminently good work, both as a table microscope and as an adjunct to my microscope camera. I have not found it convenient to present it to you in person this evening, but the photographs which I now hand around for inspection, exhibit it very clearly in its dual capacity. It has a mechanical stage revolving concentrically in the optic axis, and large milled heads control the focussing adjustments, giving very delicate and smooth movements to the same. So satisfactory has it been in all its performances, that duplicates have been made and furnished to a number of our leading microscopists throughout the country. And it may not be amiss for me to add, that the camera I have described has become a recognized instrument of research and experiment in very many of our first laboratories and colleges, and that the demand for it is growing steadily.

Thanking you for your kind attention, I would once more present the attractiveness of this branch of photography, and urge upon you to try it for yourselves.

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### MAKING PICTURES.\*

BY EDWARD L. WILSON.

I MEAN pictures, as distinguished from photographs, and I shall confine what few words I have to say to the production of pictures procurable by means of photography, or't under the sun.

The same rules apply, however, as those which govern the portrait photographer under the skylight, for Dame Nature is one of the most changeable, fidgety, exacting subjects to be found.

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\* From the American Annual of Photography and Photographic Times Almanac.

She must be composed properly; her lovely draperies must be arranged correctly; you must catch her at the right time of day if you want her in her best mood, and if you do not want to be perpetually slandered you must have an eye to the harmony of things.

There are three forms of composition in art, into one of which, when once you understand them, all the elements of the pictures you try to secure will fall just as surely as the molecules of silver will take their places in building up the image under your developer. These three forms are diagonal, pyramidal, and circular.

They are not arbitrary, *i. e.*, they are not to be followed rigidly in all cases, but their influence—the individuality—of the one or the other should be plainly discoverable in all the pictures you make.

When you believe this, and pin your faith to it, you will see how lovingly you are helped whenever you set your camera. The angels of art seem to hover about you when you are setting your tripod, and whisper in your ear: "Stop! a little more to the right; step back further; get up higher," and all such things swaying you and turning you and cajoling you and *coaxing* you, until, when the work is done, you will say to yourself: "Well, I got the best of *that* subject, I am sure."

These forms of composition need no explanation. Their names are all suggestive. Every picture you look at, done by a true artist, shows that its painter was moved by one or all of them. They are treated of elaborately in Robinson's *Pictorial Effect*, and other art works. It is only my purpose now to urge the importance of their study. The examples of work which I see daily, convince me that there is much need for their study.

There is too much of this planting the legs of the tripod down wherever and whenever "it looks as if it would take well."

A little art knowledge, a little more patience, and the careful practice of both, will secure *pictures* instead of mere photographs.

One of the greatest weaknesses is the utter disregard of the lighting of the subject on the part of many who are technically good photographers.

Going out to shoot at a mark is *one* thing.



Going for game is a more serious business.

For the latter, there is nothing like going at the right time, and when pictures are the game, there is nothing more important than choosing the right time of day. I always work out of doors by engagement.

For example, I want to photograph in this great city of New York a dozen of its prominent features.

I first go around with a memorandum book instead of a camera, and, choosing my subjects, and the point from which they are best taken, I dot down the time of day when the light will be best—Old Trinity, say 10 A.M.; Grace Church, 4 to 5 P.M.; Post-office, at noon, Broadway, from the Domestic Building tower, 2 P.M.; the Battery, 3 to 4 P.M.; Domestic Building, 9 A. M., and so on.

And then, the next day, the light being good, I go entirely by the engagements I have made, no matter how many temptations there are to break them.

So would I do in Petra, or in the Yosemite Valley, or the White Mountains.

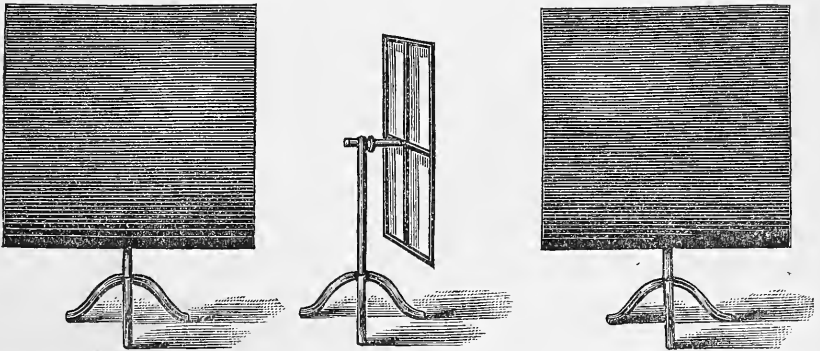
power and influence are felt and seen in giving contrast and softness, excellent pictures are procurable even when it showers. But when the sun is shut in by heavy clouds, and it is dark and dismal, it is better to stay home and study art principles.

[Translated for the Philadelphia Photographer.]

### SCHWARZ'S GRADATED BACKGROUNDS.

THE gradated backgrounds of O. Schwarz, Königsberg, Prussia, were shown at the Braunschweig exhibition in larger sizes, with very fine shadings. They are said to be of great service in lighting the figure without necessitating the removal of the background. According to the opinion of different members of the profession, they answer this purpose excellently.

This same principle is also made use of by A. Schwarz, of Berlin; only these backgrounds are smaller in size, since they are to be used only for bust-pictures, being about 3 x 4 feet in size. A particular kind



I won't expose on a subject improperly lighted any sooner than I would fire at a deer galloping without the range and reach of my rifle.

I am sure I am understood.

I am often asked: "Is it necessary always to have sunlight to get a good view?"

Assuredly it is. But I do not mean by that that a good view or group can only be made in the sunlight. Some subjects are decidedly best made in the shade—not in shadow however.

But in shady places, where the sun's

of printing process makes it possible to produce these backgrounds, complete, at a remarkably low rate.

The method of shading is shown in the accompanying cuts. As is seen, the distribution of light over the background is different (or varies) according as the person to be photographed is lighted from the left or right. The background itself is simply fastened with its frame to the head-rest, and can be washed with a damp sponge. No doubt such will soon come into use here, as their value is seen at once.

## BACKGROUNDS.

BY C. BRANGWIN BARNES.

It is related, in an anecdote very popular amongst artists of the brush and palette, that a woman of the poorer class, accompanied by her son, for whom she had hopes of high ambition, once visited Rubens, and asked that artist to take her boy (whom she declared to be a born painter) into his studio as a pupil and assistant. "He might save you a lot of work," she remarked, "if you only allowed him to paint your backgrounds at first." "My good woman," smilingly, but forcibly, responded the great master, "your son may be a born painter, but I allow no one, be he ever so good a painter, to touch my backgrounds, which I consider the most difficult, as well as the most important, part of the picture."

Whether the foregoing be truth or fairy tale, it aptly serves to illustrate the far too common idea that, as compared with the remainder of a picture, the background is a mere nothing. This idea, unfortunately for art, seems to obtain credence amongst many of the followers of our own profession, and many and many a photograph, which might otherwise have elicited admiration, has consequently been only passed by as mediocre. There is a rule in English grammar which states that all parts of a sentence should agree; and this rule might, not inaptly, be applied to photography, by simply substituting the word "picture" for "sentence." Possibly the two photographic artists who have gained the most renown for their thoroughly artistic backgrounds are Adam-Salomon and H. P. Robinson; but in the works of either of these artists it will never be found that the background is made unduly prominent; on the contrary, it is always subservient to the subject proper, but at the same time is so chosen as to harmonize therewith.

To obtain harmony which shall run through all the component parts of a photographic picture or portrait is not one of the easiest matters under the sun; and if there is difficulty experienced with the subject, there is necessarily still more in the choice and treatment of background, foreground, and accessories. In the early days of pho-

tography, one dark background was usually the photographer's sole stock, whereas now there is hardly a studio which does not contain from six to a dozen varied shades of plain backgrounds, and a small assortment of painted interiors and exteriors. The plain background being the one most commonly in use, we will first direct our attention thereto, and endeavor to throw out a few remarks which may be of advantage as to its use and abuse.

One of the first rules of art states that the background of a picture should never be darker than the darkest shadow in the hair of the subject; and this, being our primary rule, is perhaps the one that is most often transgressed, not only by the mere tyro in the art, but occasionally by the old and practised hand. Of course, there must be exceptions to this rule, as to all others; as, for example, when to have a light background would spoil the drapery, giving it, as we have before now seen, the appearance of being cut out and pasted on again. It is in cases of this kind that the advantage of a graduated background is found; and although it is perhaps less trouble to have one painted in graduation, it is often found that better results are obtained by placing at an angle the ordinary one of uniform tint, which may be either flat or alcove, though the latter is, in my idea, much to be preferred.

It is urged against the alcove background that it is clumsy; that it takes up too much of the necessarily limited space at the control of the photographer; and that it easily gets damaged; but these objections are, or should be, counted as nothing in comparison with its manifold advantages. A flat background requires to be much larger than ordinary when it is placed at an angle, and even then does not give such uniform good results as the alcove. Another rule generally recognized in art is that dark should be placed in juxtaposition to light, and *vice versa*; and yet we find in most photographs that the opposite result has been attained—the darkest side of the background that which is against the shadowed side of the face—and this is mainly caused by neither placing the flat backgrounds at an angle, nor using the much maligned though pre-

eminently useful alcove. This is not so objectionable in one-half or three-quarter length figures, as in busts, or the so-called M.P., or Berlin portraits, in which the highest artistic results can be obtained with less trouble than in any other style, always supposing that a little care is used and a little pains taken to ensure and obtain the best results. It is one thing to seat the subject before the background which has been used for the last subject, and to carefully pose and illuminate his or her head and shoulders, and then expose the plate; and it is quite another to select the most suitable tint of background you have, and to light or illuminate that, as well as the subject, before exposing. It may take a little more time, it may cost a little more trouble; but does not the enhanced beauty and artistic value of the result amply compensate you for it all?

The crude white background—or perhaps I ought to term it marginal background—of the ordinary vignette head, is, in my opinion (and happily not only in mine) a great drawback to what otherwise ranks as one of the most artistic styles of portraiture. It nullifies and kills all the pure whites of the portrait, spoils the greater part of the effect, whereas the slightest tint given thereto—just a faint graying—has the reverse result, throwing up the whites, and making the shadows appear the richer. With regard to the so-called St. Petersburg vignettes, where the marginal background is made black instead of being merely tinted, I can have but little to say, as they run to the opposite extreme to the white, and present a very inartistic *tout ensemble*. The method of tinting the vignette margins is hardly within the compass of the present article, but I may perhaps be permitted to remark, *en passant*, that the method of covering the face and figure with cotton-wool is as good as any; pink wool should be used in preference to white, which has a tendency to let enough light through to damage the purity of the high-lights.

Interior and exterior painted backgrounds have come prominently to the front during the last few years, and as the demand has increased, so has the supply; but one man still holds his own as painting the best and most artistic. The main objection to the

majority of this class of backgrounds is the inartistic sharpness of outline and want of perspective, which, if apparent in the painted screen itself, is usually far more so in the photograph. In most of the interiors the great drawback is the number of straight lines which are almost inevitably introduced, and which, when reproduced in a small photograph, often make the background appear more prominent than the model proper. Then, again, nearly every background of this class seems to be painted especially for use in full-length portraits, although twenty three-quarter or half-length are now taken for every one of that style. If Mr. Seavey or any other artist in backgrounds were to paint a few soft interior and exterior backgrounds, especially for use in three-quarter pictures, he would have an immediate and rapid sale for them, as very few photographers who have the ability have either the time or the disposition to paint them for themselves.

A system of making up backgrounds of screens and curtains seems to be gaining ground in some studios, and some few very good results of this style were exhibited at the last exhibition; but this can necessarily only be adopted in studios where the number of sitters is limited, as the identical background is very rarely suitable for two succeeding subjects, and to make up a fresh one for each sitter when you have twenty or so waiting their turns is quite impracticable. It is for this reason that a few really good painted backgrounds having a medium tint and a good perspective are needed, and with them a foreground or two to match would not be out of place for use when required, in children's or other full-length pictures; for a rock, tree stump, garden seat, or fencing, to be standing upon a too perceptible carpet, oil cloth, or cocoanut matting, is not calculated to continue the impression of genuineness which may be conveyed by even the best painted background and most careful arrangement of other accessories. The interior of a carriage or railway compartment forms an effective finish for group portraits, and owes its origin, I believe, to Mr. Horsburgh, of Edinburgh, though it obviously can only be used on occasions. An interior of a sitting-room

something like an ordinary sitting-room, and more unlike the corridor of Aladdin's Palace than the general run of interiors, would also be a boon to photographers who aim at realism, and I fancy realism is what we all wish to obtain. Our main aim is, or should be, to represent people as they are at home or out of doors, and until we get our surroundings to somewhat resemble the place in which we wish to represent them, there must always be a something wanting in our work. Very few painters, if any, paint a fancy hall or corridor as a background to their portraits. Why should photographers do so? If we wish to rival our brethren of the brush in realism, we must assail them at all points; not merely in pose or expression, but in all suitability of accessories, and, before and above all things, in suitability of backgrounds.—*Photographic News.*

## PHOTOTYPGRAPHY.

BY F. ED. HERMANN.

FOR the production of satisfactory etchings in zinc, which may be printed in the letter-press, the following process, as it is employed by Mr. O. Sommer, is one giving excellent results.

A piece of good paper of a medium thickness is coated with a warm gelatine solution of 90° to 98°, made as follows:

Distilled Water . . . .	400 parts.
Gelatine . . . . .	10 "
Glycerine . . . . .	2 "

When dry, the paper is floated on a solution of

Potassium Bichromate . . . .	1 part.
Water . . . . .	15 parts.

It is laid with the gelatine side downwards on a well-cleaned glass plate, and dried in the dark-room. In stripping off the paper from the glass it comes away with a very high gloss, and will, therefore, give extremely fine and sharp prints.

This prepared paper being exposed to light behind a negative, is slightly moistened on the back with water, and laid on a glass plate, where it is fastened with strips of glue. After a lapse of ten to fifteen minutes, when

the paper will be thoroughly dry, it is coated with a resin solution, made as follows:

Asphaltum . . . . .	10 parts.
Turpentine . . . . .	10 "
White Wax . . . . .	4 "
Benzole . . . . .	200 "

The asphaltum being at first melted together with the wax, and the turpentine dissolved in the benzole, the latter is added to the wax solution. These are well stirred together. This resin solution is poured into a large bottle and allowed to stand for twenty-four hours. Whenever required for use it must be filtered. The solution must always be a diluted one, so that the chromatic image may be seen in all its parts through the resin film.

The developed image is now transferred to a zinc plate, is cleaned with spirit and emery powder just before use, and heated to 123° to 134°. The paper is laid face downwards on the zinc plate, and passed twice through the lithographic or lichtdruck press. Then the plate, together with the adhering picture, is laid in a solution of

Chloride of Lime . . . . .	1 part.
Water . . . . .	50 parts,

for two hours, and dried with blotting paper. The paper is coated on the back with a mixture of

Acetic Acid . . . . .	2 parts.
Alcohol . . . . .	1 part,

which easily penetrates the paper and softens the insoluble gelatine. If the paper, and with it the gelatine film, be stripped off, the resin image will remain on the zinc plate.

The surface of the zinc bearing the picture is next coated with greasy ink. A small quantity of the ink is taken and laid upon a flat stone slab, and diluted with lithographic varnish, sufficient to give it the consistency of honey. This is well worked with a lithographic roller on a smooth stone, and after the roller has taken an even coating, it is applied to the picture on the zinc plate whilst the latter is moist. By this procedure it will be found that the lines of the image take the ink. This is repeated three or four times, when the image will be charged with ink. The plate is now dusted with a mixture of

Asphaltum . . . . 2 parts.  
Colophony . . . . 1 part,

and slightly etched for three to five minutes in a solution of

Nitric Acid . . . . 1 part.  
Water . . . . 50 parts,

the dish containing the solution constantly being rocked. The plate is then rinsed with water, dried, and warmed. The warmed ink and resin gradually runs down the raised lines and fills the close spaces. These operations are repeated, this time applying some more greasy ink and an acid solution of double the strength of the foregoing. When the plate is etched the third time, a solution of

Nitric Acid . . . . 1 part.  
Water . . . . 30 parts,

is used, and the plate etched for twelve to fifteen minutes. For the fourth etching a bath of

Nitric Acid . . . . 1 part.  
Water . . . . 20 parts,

is applied, and the plates etched for eighteen or twenty minutes; and for further etching the solution may be kept even more saturated, using it, however, not stronger than one in fifteen, otherwise the zinc plate may become warm in it. How often these operations are to be repeated depends on the quality of the picture. If it is poor in broad lights, four etchings may often be sufficient; if, however, the contrary takes place, six and even seven etchings may sometimes be required. When the etching is considered complete, the ink and resin is removed from the plate by a mixture of

Turpentine Oil . . . . 2 parts.  
Benzole . . . . 1 part,

and then the plate is cleaned with spirit and whiting. The larger portions of the block, which would print white, may be sawn out, and the plate is then mounted on a wooden block to be printed in the letter-press.—“German Correspondence,” *British Journal*.

### ON EFFECTIVE COMBINATION LENSES.

THE REV. T. PERKINS, F.R.A.S., in the *English Mechanic*, writes: “There is a

manner of using photographic lenses, which, though known to some, is not known to all, and which I have not seen mentioned in any handbook. If you have, say, a wide angle symmetrical of 4 in. focus, and another of 6 in. focus, and if you remove the front combination of the 6 in. doublet, and replace it by either of the combinations from the 4 in. doublet, you get a useful lens of focus intermediate between the two. Theoretically, no doubt, there is a slight distortion of marginal lines; but practically this is so small it may be neglected. I have also found that a similar result may be obtained by removing the back combination of the wide-angled symmetrical of 4 in. focus, and replacing it by one of the combination of a rapid symmetrical of 6 in. focus. It is important that the short focus lens should be in front, or the size of the field is diminished, and, when practicable, the shorter mount should be used, and it is well that the focal lengths of the two lenses should not differ too much. In the cases I have mentioned, if the chemical focus is displayed at all, it is by so small an amount that a stop of  $f/23$  or  $f/32$  belonging to the shorter focussed doublet—equivalent to about  $f/29$  or  $f/40$  on the construction—covers a half plate sharply if the subject is an ordinary landscape.” This interesting question is exhaustively treated by Mr. Perkins in an article which appeared in the *Amateur Photographer* of August 6th, 1886.

### THE WORLD'S PHOTOGRAPHY FOCUSED.

MR. T. G. WHAITE, of London, has devised a new frame for panoramic backgrounds, overcoming the usual tendency to “bag” by making the canvas travel over a slightly convex backboard made of thin strips of wood.

A SPECIALIST on hypnotism suggests that “if an artist were to wish to have before him a study of an ecstatic, he could not do better than hypnotise his model, and induce the beatific vision which elevates and refines the expression in so wonderful a manner.” So mesmerism offers help to photography. Yet good photographers have been doing

this, in a way, for years—working for an influence over the subject so as to control his expressions and induce the one most suitable.

AN English "Roads Improvement Association" wishes to impress the public with the improperly large size of stones used in road-mending, and shows us an "awful example"—a six and a half inch rock—by a wood engraving! Where were their cameras?

DID you know that bromide paper will give an excellent print from a thin negative from which it would be impossible to get a good print with silver paper?

SOME English photographers have just found that beer can be put to photographic use as a restrainer. St. Louis papers please copy.

A CERTAIN person, says Mr. A. W. Scott, in the *British Journal*, had taken up coloring lantern slides. Practice bred confidence, and at last he improved one of his slides by a very gorgeous and lurid sunset, working some hours over it. After finishing it, finding he had still half an hour or so, he hastily tinted another slide, putting in a plain blue sky with a white cloud or two. He showed them to a friend, stating one had taken him six times as long to paint as the other.

"Ah! this, I suppose," said the friend, looking at the sunset, "is the one you didn't spend much time over." The other was long studied, and then: "This is the finest yet," was the comment; "You are improving; make all your pictures like that, and you'll do first-rate!"

There is a whole lecture on art in that anecdote.

A DISCUSSION is going on in England over the size of albumen paper. They think 24 x 20 is a more desirable size than 22 x 17. For those of us who use 12 x 10 or 15 x 12 plates, or 4 x 5 or 5 x 6, it surely is.

THERE recently died in London a pioneer photographer, Mr. W. H. Silvester Laroche. He began with the daguerrotype, in 1845. In 1854 he was sued by Fox Talbot for alleged infringement of his

patent, the Talbotype—license \$500 a year—in using the collodion process. He was successful in his defence, and the process was thus thrown open to the world.

AN interesting instance of "long distance photography" cited is a plate taken in 1854, a five-foot telescope, with a 3½-inch object glass stopped to one inch, simply being placed at one end of a box, the plate at the other.

A NEW microscopic attachment for the lantern has been introduced by Newton & Co., of London. It is simply made up of condenser, stage for the object, and objective. By adding a prism the image can be thrown downward upon paper.

THE *Camera*, of London, gives an excellent criticism on the Pall Mall Photographic Exhibition, illustrated by three autoglyphic plates. All are good; a full page one, "The Tennis Player," by Byrne & Co., Richmond, is a picture, beautiful in pose and lighting.

In the same journal, Mr. Andrew Pringle, giving his experience with stripping films, states that he has always used alkaline pyro instead of the recommended oxalate with them, and with entire success. He thinks the alkali restrains the tanning tendency of the pyro.

Two very good autoglyphic prints illustrate an article, in the *Camera*, on "Algeria and Tunis as a Field for Photography," by Mr. W. H. Barbrook. One is a dancing girl, the other, which looks like a picture by Gerome, of a barber's shop in Algiers. The richness and color of the latter are remarkable.

MR. G. G. MITCHELL makes some extremely apt and able criticisms on Mr. Adcock's article "On Men's Heads" recently reprinted in this journal. After noting that the working photographer must give the public what it wants—which need not prevent his endeavors to make it desire the right thing—and that it will have retouching, he observes how the photograph often exaggerates shadow and hardens high light. Underexposed negatives do not dis-

play to him the beauties which Mr. Adcock thinks may lurk in them. "Better," he says, "to properly expose and light, and then print deep."

THE Photographic Section of the Imperial Russian Polytechnic Society has elected these officers: *President*, M. S. Levitsky; *Vice-President*, V. Sreznepfsky; *Members of Council*, N. Condonayaky, N. Indoutny, J. Khartulary, B. Salvanyeff, N. Tchagin, P. Olchin, and C. Chesterman.

We used oxalate on these names, nothing else would bring them out.

A good deal of "cutting" is going on among the foreign stockdealers, and a consequent demoralization of traffic. The unthinking and impolitic way the buyer has of screaming for the "cheap," no matter how "nawsty," makes business hard to do and unsatisfactory.

THE *Camera*, of London, says: "Mr. John Carbutt, of Philadelphia, we learn from the PHILADELPHIA PHOTOGRAPHER, has hit upon the happy idea of coating plates of ground glass with transparent emulsion, for window decoration. This method overcomes the trouble of furnishing such a transparency with any kind of backing. Our readers will doubtless take a hint from this new and easy method for producing the most charming form of photographic work."

CAPT. BIERING has made a new kind of plate which appears to be a modification, or an improvement on the gelatine plates containing pyrogallic acid, which, made with the emulsion of the bromide of silver, containing a certain quantity of pyrogallic acid, are developed in an alkaline bath. The new plates contain hydroquinone instead of pyrogallic acid, and are considered very good. They are developed by means of a solution of sugared lime; that is to say, a solution of quick-lime in sugared water, or syrup of sugar. The image appears in about thirty seconds, but to obtain soft negatives, it is often necessary to dilute the developer.

THE HUMAN EYE AND THE CAMERA.—There has existed for some time a club of

amateur photographers called the *Camera Club*, whose proceedings reach us from time to time through the medium of the president. At the end of October there was a meeting called to hear the reading of a paper by Dr. Lindsay Johnson on the "Eye Considered as a Photographic Camera."

After having summarily explained the anatomical structure of the eye, the author boiled the eye of an ox, so as to show a nucleus and concentric layers, which he considers analogous to the combination of *flint glass* and *crown glass* in photographic lenses. The human lens, in regard to its properties, is more closely assimilated to a portrait lens. It only covers an angle of about five degrees, because, according to the author, the mind cannot take care in a given time of a larger surface. To demonstrate the analogy of the retina with the photographic plate, Mr. Johnson printed, by means of the Drummond light, an image on the retina of a rabbit which had just died, and this image, white on purple ground, it was possible to fix.—DR. PHIPSON, in *Moniteur*.

THE USE OF ELECTRIC LIGHT FOR LIGHTNING PORTRAITS.—By a lengthy decision, the Paris Court of Appeals has declared null, for want of novelty, the patent of M. Van der Weyde, taken out in France February 1, 1877, and purchased by M. Liébert, August 5, 1878, as well as the additions taken out by M. Liébert to the above patent. It appears from this document that M. Liébert acted in good faith, but that he did not control the validity of the foreign patent acquired by him. It appears that the patent was made public in England January 20, 1877, and that the French patent was taken out February 1st of the same year, too late, it is seen to be valid.

A GOOD METHOD OF PASTING.—Heat milk with some vinous acid, and dissolve the separated caseine in six per cent. borax solution.

MOVING PLATES DURING THE DEVELOPMENT.—C. Kindermann, in *Zeitung*, recommends his associates to move their dishes during development as little as possible, then the result will be much finer than usual. After the fixing and rinsing, place the nega-

tive for two or three minutes in a dish of water, to which a few drops of chemically pure sulphuric acid have been added. By this means the plates are quite clear in the shadows, with little impurities, and no fog.

*Nature* gives a description of a camera, "the invention of Mons. Fétter," which is no more or less than a copy of Mr. Gray's "Vest" (or, for the ladies, "concealed") camera, and is called "photo-lightning." The illustrations given by *Nature* expose the borrowed ideas splendidly.

MONS ENGALBERT, in the *Bulletin Belge*, describes an ingenious little camera which he dubs the "Alpinist." Its chief novelty consists in an "annex," or box, at the back, made to retain six double holders. A system of springs keeps the forward holder in place. When the exposure is made, it is removed and its next neighbor in the rear takes its place, while the first is placed at the rear of all, and so on until all six have had their turn. The whole contrivance is packed in a leather satchel *a la Anthony*, and carried by a strap over the shoulder.

MR. W. M. FLINDERS PETRIE, the famed Egyptian explorer, who discovered the site, and excavated the ruins of the ancient city of Tanis, the Zoan of the Bible, has returned to Egypt for further explorations. His first memorial on Tanis, supplied to subscribers to the Egyptian exploration fund (under whose auspices Mr. Petrie works), is a very interesting work, illustrated by a number of photogravure pictures.

Rev. W. C. Winslow, 429 Beacon Street, Boston, is the secretary of the fund, and will receive subscriptions.

Mr. Petrie is a talented photographer as well as explorer. In his last letter to us he writes: "My shutter (which I have had passing boats and water ripples quite sharp with) was a plain drop, made out in Egypt with a bit of tin and lath I had handy."

A REMARKABLE family experience has occurred at Findley's Lake, Chautauqua County. It was the taking of a photograph of Mrs. Benjamin Boorman, of that place; her son, Mr. Edwin Boorman; his daughter, Mrs. G. R. Osborne; her daughter, D. J.

Dean, and Mrs. Dean's baby. The picture represents five generations, all in good health.—*Buffalo Express*.

IN a recent number of *Popular Science Monthly*, Mr. H. A. Doty discusses the ever-discussable question, "Are black and white colors?" In his essay Mr. Doty presents the varied and often contradictory views of scientists as to the proper classification of white and black; he then gives a careful analysis of the impressions made upon the retina by different degrees of light. His conclusion is that both white and black are colors, and both should have a proper place upon the chromatic scale.

IN DR. PHIPSON'S correspondence in the *Paris Moniteur*, he says, with regard to the use of isochromatic plates in microscopic photography:

At the last meeting of the London Microscopical Society, a communication was made by Mr. Crookshank on the use of isochromatic plates in the reproduction of microscopic objects. The author asserts that the use of these plates enabled him to obtain photographs of the bacteria which, up to the present time, have only been reproduced by the process of Dr. Koch, of Berlin—that is to say, by first coloring the object by means of an aniline color. Mr. Crookshank asserts that the process of Koch, which is not always successful, is not necessary if isochromatic plates are used.

THE QUESTION OF MEDALS AT EXHIBITIONS.—The value of medals given in photographic exhibitions will become somewhat modified, if what one of our journals announces is true. It is said that the well-known photographer, Mr. Vernon Heath, of London, whose beautiful landscapes are so much admired, did not receive a medal at the last exhibition of the London Photographic Society, because "it would be a kind of insult to offer a medal to a so distinguished and well-known photographer." How many photographic geniuses have we among us that occupy so elevated a position? It would be well for our colleague to publish the list once for all, for fear that some might be accidentally insulted at the exhibitions at home and abroad.—*Dr. Phipson*.



PAPER NEGATIVES AT THE EDINBURGH SOCIETY.—At the Edinburgh Photographic Society, Mr. Whaite reverted to the question of paper negatives, a subject which, at this time, occupies much attention here. At the commencement of his experiments, the author treated his paper with castor oil, in which he boiled it. He afterward gave up this practice and used vaseline, which was certainly an improvement. At present he *has ceased making use of any oil or grease*, and he asserts that the result is just as good, but it requires about twice as long a time to print the positive. If the paper that supports the sensitive film is of the requisite quality, it is not necessary to use oil, grease, or wax to render it more or less translucent. Another point on which the author insists is the use of ammonia instead of carbonate of potash in the developing bath. The fogging of the negative is thus more certainly avoided. It has been said that paper negatives are more rapid than the ordinary plate; without deciding the question, Mr. Whaite asserts that his exposures are all instantaneous. He remarks, by the way, that paper negatives can support a great deal more ammonia in the development than the ordinary plates; moreover, they may be reduced or intensified as easily as these last.—DR. PHIPSON in *Le Moniteur*.

A NEW ZEALAND PHOTOGRAPHER AT THE SOUTH LONDON SOCIETY.—At the South London Society, Mr. A. H. Burton, photographer, who had just arrived there from New Zealand, gave an interesting lecture, illustrated by 120 transparencies from negatives obtained before and after the terrible volcanic commotion which destroyed a large portion of one of the islands on June 10th of this year. It may easily be conceived that this lecture was listened to with the deepest interest.

MR. PUMPHREY'S FILMS OF FLEXIBLE GLASS.—It appears that Mr. Pumphrey, of Birmingham, has been successful with these films of "flexible glass." This is a name that he gives to a preparation for negatives which is almost as transparent as glass, and which will become a formidable rival to the Eastman paper, which has recently been the subject of so many experiments.—*Moniteur*.

PUBLICITY FOR NEW PRODUCTS.—Today, the method adopted by our manufacturers to make known their new products consists, not only in their liberal advertisement in the most widely circulated journals, but also in sending free samples to many of the societies, which are at present so very numerous. These societies are largely composed of amateur photographers, who have sufficient time at their disposal to try these novelties, and who render an account of their experiments at the following meetings. These meetings are reported every month in the different journals, in which are found the advertisements of the manufacturers. This is a very useful and legitimate mode of advertising.

MODIFICATION OF THE DEVELOPER OF MR. HENDERSON.—Mr. Bell has modified Mr. Henderson's developer, especially for plates that are somewhat underexposed. The formula which he has adopted, and which gives him excellent results, is as follows:

I.	
Water . . .	180 c. c. (6 ounces).
Pyrogallie acid . . .	30 grammes (1 oz.).
Sulphuric acid . . .	4 grammes (60 gr.).
II.	
Water . . .	960 c. c. (32 ounces).
Ferrocyanide of potassium . . .	120 grammes (4 oz.).
Carbonate of soda and sulphite of soda, of each . . .	15 grammes (4 dr.).

In using, take 1 part of I. for 32 parts of II.

As this developer does not stain the fingers, it may be recommended to ladies. But the ferrocyanide of potassium in contact with sulphuric acid, renders it dangerous, inasmuch as it is by the action of acids on this salt that prussic acid is obtained.

By an ingenious use of photography an authentic portrait of Raphael has been secured. There are many reputed portraits of him extant, but the authenticity of none of them is absolutely secure. It is, however, well known on contemporary authority that a certain figure in the great fresco called

"The School of Athens," was intended for a portrait of himself. This figure has been much impaired through time and the effects of restorations. It was observed by M. Braun, the celebrated photographer of old pictures, that, as usual with fresco painters, the outlines of the portrait had been drawn on wet plaster with a sharp instrument, leaving a rough line in the plaster, which was made quite visible by a strong light thrown on it from the side. This line was then photographed under the side light, and a portrait of Raphael was produced which is known to be his own work, and which varies from all the portraits of him extant, except the wood-cut which Vasari used to illustrate his life of the great artist.

THE latest thing in instantaneous photography is the suggestion of the French Academy of Sciences that an international conference be held in Paris next spring to make arrangements for the elaboration of a photographic map of the heavens, to be simultaneously executed at ten or twelve observatories, scattered over the surface of the earth.

THE *News* supplementary picture for December 10, "Boss of the Bothy," is a picture of excellent feeling, by Mrs. Auckham, of a gardener violinist in his home. Well conceived and carefully carried out.

THE introduction of photo-lithographic presses is likely to revolutionize the Chinese book trade. Two firms at Shanghai—one English and one native—now issue the celestial classics at a price that causes each individual pig-tail to stand on end with delight.

THE November issue of the *Journal and Transactions of the Photographic Society of Great Britain* is supplemented by a fine photogravure print of Mr. H. P. Robinson's charming picture of "Calling the Cows."

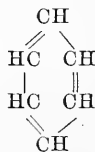
THE "winter number" of the *Amateur Photographer* is a "ridiculous muss." The supplementary pictures have no artistic merit, and the photographic process by which they have been reproduced gives results which are simply terrible.

## PYROGALLOL.\*

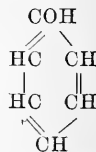
BY SPENCER B. NEWBURY,  
Cornell University.

THOUGH pyrogallol, or pyrogallic acid, is one of the most familiar substances with which photographers have to deal, yet but little is generally known concerning its chemical nature. In view of the great usefulness of the substance, and the beautiful results which it can be made to yield, it may be that a brief sketch of the origin, mode of manufacture, and chemical properties of pyro will not prove uninteresting to this society of students of the science as well as of the art of photography.

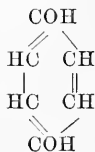
Pyrogallol is a derivative of benzole, and is closely related to phenol, or carboic acid, and also to hydrokinone. The relations in which these substances stand to each other is shown by their graphic formulas:



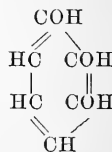
Benzole.



Phenol or carboic acid.



Hydrokinone.



Pyrogallol.

It will be seen from this diagram that phenol consists of benzole in which one atom of hydrogen attached to a carbon atom is replaced by the group "hydroxyl," or OH; in hydrokinone two atoms of hydrogen, and in pyrogallol three atoms, are replaced in the same way. It is not, however, from benzole that pyrogallol can most conveniently be prepared. An abundant source of supply is found in nature in the gall-nuts, or rounded swellings produced by the sting of an insect on the twigs of the *Quercus infectoria*, a species of oak common in Syria and Asia Minor. These gall-nuts are collected and exported in great quanti-

\* Read before the Society of Amateur Photographers of New York.

ties from Smyrna and Aleppo to all parts of the world, principally for use in the manufacture of writing ink. They contain a large percentage of tannic acid, or digallic acid, which on boiling with dilute acids splits up into two molecules of gallic acid. Finally, gallic acid, when gently heated, melts and gives off carbonic acid, forming pyrogallol, according to the equation



Pyrogallol forms white crystalline leaflets and tufts, melts a little above the boiling-point of water, and when heated is volatilized and deposited again in feathery masses in the cooler parts of the vessel. This operation is termed sublimation, and is a valuable method of purification of volatile solids, since in passing into the state of vapor the impurities are left behind. Hence, the purest pyrogallol is termed "resublimed."

Pyrogallol is not an acid, for the slightest addition of an alkali renders it distinctly alkaline. Rosing states that it does not decompose carbonates, and forms no salts with the alkalies. It is, therefore, evident that the common name pyrogallic acid, gives a false idea of the nature of the substance, and that it is no affectation to say "pyrogallol," as all modern chemical writers do.

Pyrogallol—or "pyro," to use a convenient and well-established abbreviation—owes its efficiency as a developer to the great ease with which it may be oxidized and decomposed. In a dry state it remains unaltered in the air, but in solution in water it quickly absorbs oxygen, and is converted into carbonic acid, acetic acid, and brown products of decomposition. Reducing agents prevent this; sulphurous acid, for example, is a well-known preservative of pyro solutions.

Salts of gold, silver, and mercury are readily reduced to metal on the addition of pyro to their aqueous solutions. In the case of silver compounds, this action is greatly retarded by the presence of large quantities of acids, and, on the other hand, is rendered much more energetic if the pyro be made alkaline with caustic ammonia, potash, or soda, or the carbonates of these alkalies. In fact, alkaline pyro will

reduce to metal not only the soluble salts of silver, but also the bromide, chloride, and iodide, which are not affected by acid pyro solutions. In the old wet collodion process, the development consisted in the reduction of the free nitrate of silver which was present in excess, and the deposition of the metallic silver which resulted upon the parts of the film upon which the light had acted. For this purpose, if pyro was employed, it was necessary to use a highly acid solution, in order that the deposition of silver should take place gradually; neutral or alkaline pyro would give a dense fog at once. In dry plates, however, there is no silver nitrate present, and the development consists in the direct reduction to the metal of the bromide and iodide of silver composing the film. To affect this the most powerful developing agents which chemistry can furnish—as, for example, alkaline pyro—may with safety be employed.

Of the various alkalies which have been suggested for use with pyro, ammonium hydrate and the carbonates of soda and potash are most often employed. Sodium sulphite is generally added to the pyro solution to preserve it from decomposition, and to prevent the staining of the negatives which results from the action of oxidized pyro on the gelatine of the film. The preservative effect is also much aided by the addition of a little sulphuric acid to the solution of pyro and sulphite, thus causing the liberation of a small amount of sulphurous acid. Even with all these precautions, solutions of pyro are very liable to deterioration by absorption of oxygen from the air, giving stained negatives, and by far the best plan is, as is well known, to prepare the solutions only in small quantities, and to renew them frequently.

In the hands of the writer the sulpho-pyro-potash developer (suggested, I believe, by your President) has yielded results superior to those obtained by any other formula. There is an exquisite crispness and beauty about the pyro-potash negatives which seems to me to be lacking in those produced by the aid of either soda or ammonia.

Other substances, resembling pyrogallol in chemical character, and, like pyro, be-

longing to the group of polyvalent phenols, are known to have strong reducing properties, and may be used as developers. One of these, hydrokinone, of which the formula is before you, is stated by Captain Abney to be more efficient than pyro, and to give results of equal beauty. Its high price has, however, been an obstacle to its general use. Two "isomers" of pyrogallol (that is, substances having the same composition but differing in the arrangement of the atoms in the molecule), namely, phloroglucin and oxyhydrokinone, are stated by Dr. Eder to be less powerful developers than pyrogallol. These differ from pyro only in the fact that the three hydrogen groups are attached to different carbon atoms in the closed chain. Another substance, tetraoxybenzine, which has four hydroxyl groups, and which may yield interesting results, appears not yet to have been tested photographically.

All these compounds act as developers by virtue of the readiness with which they absorb oxygen. It is probable that the developer acts indirectly upon the bromide and iodide of silver, by decomposing water with absorption of oxygen, setting hydrogen free, which in turn takes the bromide from the silver compound, forming hydrobromic acid, and leaving metallic silver. The influence of the alkali may be explained by the supposition that it neutralizes this acid as fast as it is formed. In the action of the developer, however, there is much that is only very imperfectly understood, for we know nothing positive as yet as to the nature of the mysterious, invisible, latent image produced upon the plate by light, which gives the first impulse to the development and determines the chemical reactions which result in the visible picture. Until we know more of these things, we may say that in many points chemists find themselves as much in darkness as other people when they enter the dark room.

### TASTE IN CARDBOARD.

WE have made it a point in our work to direct our readers not only to the advantages derivable from the study and practice of art principles, but to the exercise of taste in the mounting and finishing of their pic-

tures. So much depends not only upon careful trimming, pasting, and finishing of the print, but upon the choice of cardboard both as to quality, color, and the printing thereon. Some gross blunders are made in this last direction owing to the thoughtless habit prevailing of choosing the cheap rather than the good.

We will state a case in point, quoting from a letter just received. The writer says:

DEAR SIR: I send you a few sample cards. I had 500 of these printed this way and I wrote the dealer about the printing, the gold rubbing off so that they were unfit to use. I asked him to send 500 others properly printed. He sent the additional 500, but they were just about the same quality of work as the first ones. I told him they were not first-class, and I did not want to use them. He replied that they were no use to any one but me, and that the printing was all right, finally saying that he would discount five per cent. on one-half of them but could not lose the whole lot. I am explicit because I would like to have your opinion.

This letter was accompanied by six bottle-green cabinet mounts with red bevel (a very tasteful combination) which had been made useless by the cheap "Dutch metal" bronze powder used for printing them, apparently without any sizing, for nearly the whole design could be removed by easy rubbing. When we opened the parcel the bronze powder scattered over our desk making its blue cloth cover look like a section of the heavens with a division of the pleiades scintillating to and fro over its well-worn top. The printing was simply execrable and had been done by some one who had neither brains, taste, or conscience. Each card was calculated to send ruin running wild into any mounting-room.

We recognized the cards as being of the A. M. Collins Manufacturing Company's production, but not their printing, and to that firm sent some of them with the request to print one of their full designs upon the other side.

They did so, returned them to us and we, in turn, referred them back to our corre-

spondent, asking him to compare, then judge.

Now here is only one case of many, where the thoughtless catering to the desire for cheap, tasteless, work has cost a poor photographer ten times what he could save, and created an unpleasant feeling between him and his dealer.

Other blunders are made impelled by the same blind preference for low prices, in buying an inferior quality of cardboard, which not only warps and twists and turns color, but which even flies apart—one layer from the other. So much for quality. In the choice of color and combination of colors let us also urge the use of good sense and brains. Contrast between the color of the card and the border and printing, or both, is always well, but the tints employed should harmonize and never be violent. A primrose card, or bottle-green or maroon or black, all look well with a rosy or red edge and printing. Rose color and white look well with gilt; gray, pearl, and violet with black; straw color and gold with brown ink, and so on.

It is safe to suppose that large manufacturers, such as we have mentioned, would have the best facilities for printing not only, but for printing tasteful combinations.

Press upon your dealer your desire for the best, refuse the spurious, and pleasure and profit will follow as far as to the homes of appreciative patrons. The use of bad, tasteless cards is one of the degrading results of the prevalent "cheap" business.

If called upon to advise our patrons we should write to them to patronize those who have for a generation conscientiously endeavored to serve their wants with goods of a maximum quality at a minimum price. The potent influence with all photographers now is *price*, and how to make for them such goods as experience teaches they should use and yet meet their expectations as to price is a very perplexing problem for the manufacturer to solve. The palpable inferiority of cards in use, purchased, perhaps, at five per cent. less than the prices for the best, and to be told that they "are good enough," or "good enough for the prices obtained for work," is discouraging. A good house will allow nothing to go out

but what they have reason to know is what it should be. To protect their customers to this extent necessitates, as any one will readily realize, much labor and attention, for which the manufacturer must be compensated and for which in their transactions with those from whom they purchase supplies of material, and from whom they expect the same attention as is given, they are glad to pay the manufacturers for their careful attention.

We have been thus explicit and earnest in this matter because we know that both our readers and the public have suffered much. A little more care will correct it all.

### BIBLIOGRAPHY.

PHOTOGRAPHY IN THE STUDIO AND IN THE FIELD, by E. M. Estabrooke. A practical manual, designed as a companion alike to the professional and the amateur photographer. New York: E. & H. T. Anthony & Co., 591 Broadway. Anthony's Photo-series No. 20, \$1.50.

Our many readers who have Mr. Estabrooke's *The Ferrottype and How to Make it*, having seen the announcement of his new work, have for some time been eager with expectation—have been expecting *much*—and they are not going to be disappointed. By the courtesy of the publishers we are privileged to have advance sheets, and now hasten to tell our readers what a treat is in store for them. In the first place, the work is intensely practical. Herein is the author's individuality shown. For those who have in the past years been benefited by his practical instructions in their own dark-rooms, and have watched his methods, know that his particular forte is in making everything so clear, so plain, so practical, before them. Mr. Estabrooke's new manual is like Mr. Estabrooke.

It contains 238 pages the size of *Mosaics*, and is profusely illustrated.

After the introduction, it is divided into two parts. The first is devoted to what concerns the studio, its construction, accoutrement, the manipulations, *modus operandi*, etc., of all the work that pertains to the production of first-class pictures. There seems to have been no overlooking. It is the

production of a man to whom "going through the motions" practically is more natural, and more of a habit, than eating. The second part is for the out-door worker, and is likewise exhaustive and complete. All topics are treated, from the broadest landscape to the most minute micrograph.

Negative-making in all its details; printing by various methods and finish, all come in for careful attention. We predict a large demand for the work, and congratulate all concerned.

LA PHOTOGRAPHIE.—An exposé of the operations of this art and of the photo-chemical phenomena which serve as its basis, with cuts, by Major Hannot, of the Military Cartographic Institute of Brussels.

After having read with as much attention as interest the little book of M. Hannot, we do not hesitate to state that, notwithstanding its modest appearance, it may well be classed among the best works that have been published on the subject; it is a treatise both elementary and profound; written under the form of a dialogue, it comprises a complete and progressive course of photography, nothing being omitted; critical examination of the apparatus, precise views on their use, judicious observations on the action of light, explanations of the divers operations used in obtaining positives and negatives; historical summary of the progressive march of photography from the experiments of Porta, Charles, Wedgewood, up to the last improvements; rapid review of all the known processes, Daguerrotypy, Talbotypy, collodion, gelatino-bromide, heliogravure, phototypy, Woodburytypy, photo-lithography; processes with carbon, ferro-cyanide, platinum salts; manufacture of photographic enamels. Theoretical and practical, this charming little work embraces everything, explains everything, and this simply, clearly, by means of the cuts placed in the text.

The author terminates his treatise by a strong argument in favor of the oft disputed question: Is photography an art? By unanswerable arguments he proves that a skilful photographer—if he possesses the sentiment of the beautiful—can create an artistic work, combining all the conditions

of light, perspective, and harmony. In confirmation of his opinion, M. Hannot mentions that of one of the most celebrated painters of the French School, in a notice on photography, M. Paul Delaroché, expressed himself as follows:

"Photography carries so far the perfection of certain essential conditions of art that it will become for painters, even the most skilful, a subject of observation and study. The finish of photographic designs, of priceless value, disturbs nowise the tranquility of the masses, nor in any manner injures the general effect. The accuracy of the lines, the precision of the forms, are as complete as possible in photographic designs, and at the same time we find there a modelling broad, energetic, and a whole as rich in tone as it is in effect. The painter will have in this process a prompt method of making collections of studies which he could not otherwise obtain but with great loss of time, much trouble, and in a much less perfect manner, whatever his talent may be. To resume, this admirable discovery is an immense service rendered to the arts."—*Le Progrés Photographique*.

A PRACTICAL TREATISE ON DECORATIVE PHOTOGRAPHY AS APPLIED TO THE INDUSTRIAL ARTS.—This work is by M.V. Roux, of Paris. He says in his preface: "The extension of photographic processes, in the last few years, has given new means of decoration, simple and economical, of a general application in the industrial arts. The desire of contributing to their progress, within our limits, has induced us to publish a compendium of the formulæ and manipulations now used to obtain good results."

In regard to the processes of execution and to the substances used, we are told not to expect to find pretension to the discovery of important secrets. If it is useful for the future of these arts to spread the information already known which concerns them, it is no less useful to correct certain errors which in some cases render their development impossible. The book, therefore, is principally taken up with condensations of already published processes and experiments with given formulas, verifying them, and

adding to them the observations authorized by daily practice.

The work is divided into four parts. The first is exclusively devoted to simplified photographic work; the second to its application to stained glass, enamels, porcelains, pottery, etc.; the third to the engraving of metals in sunken lines or in relief (articles in gold and silver, jewelry, arms, etc.); the fourth and last to the failures which the tyro always meets with when, on coming from his laboratory, he attempts to manufacture on a large scale. He has drawn largely thus on the works of Poitevin, Godard, Vidal, etc.

**PHOTOGRAPHY WITHOUT A LENS.**—This interesting book, by Captain R. Colson, is illustrated by a plate of the Dome of the Hotel des Invalides, of Paris. The photograph was taken at a height of nearly 110 yards from the ground, through an opening three-tenths of millimetre in diameter, with an exposure of twenty seconds.

The author has written the book to call attention to the use in photography of the camera with a single opening, without a lens, which, he thinks, has not had the attention it deserves.

Chapter I. is devoted to a comparative examination of the formation of images by convergent lenses and narrow openings; it is there shown that the last possess certain remarkable properties which the first do not have, such as great amplitude of focus, wide field, and geometrical precision.

Chapter II. contains practical information on photography, by means of a camera with a simple opening, and on the construction of the camera and the opening.

In the third, and last chapter, are reviewed certain applications to which this process is admirably adapted, especially, 1st, panoramic views, with cylindrical perspective, giving in a single exposure either a quarter of a horizon or an entire panorama; 2d, topographical plans by means of plane negatives giving, by very simple geometrical reconstructions, the planimetry and the levelling of all the visible points of the ground, in an angle measuring 90° of the summits of a known base; 3d, stereoscopic views, which any one may easily obtain by

means of this camera, and examine at the distance of distinct vision without any special appliance. This chapter contains besides the arrangement to be given to the camera according to the use to which it is to be put.

This process, based upon the use of a minute opening as the only optical appliance, is, therefore, capable of rendering great service, not only by its special characteristics, to the soldier, the topographer, the tourist, the engineer, and the artist; but also in a general way by its simplicity, by the amplitude of its focus, and by the facility with which every one can construct, very economically, camera and opening, to all amateur photographers.

These works are all published by M. Gauthier-Villars, Paris.

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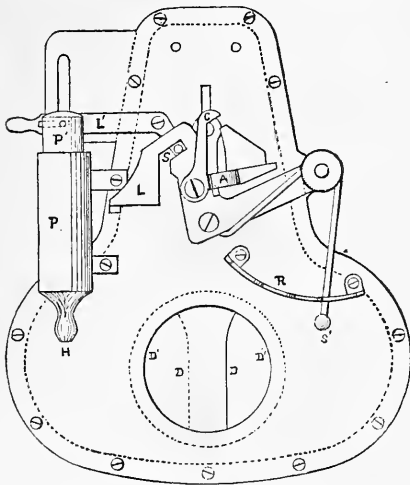
### THE MARCELLUS SHUTTER.

It is about all an editorial reputation is worth in this rapid era of photography to recommend a drop-shutter, but at the risk of being guillotined by some of our patrons at a season of the year when we expect them all to squeeze the bulb and open their purses to drop us a V, we will call attention to the recent invention of one of the young men of our art, which seems well worthy of it.

We allude to the Marcellus shutter, which seems to be constructed on principles with a good deal of novelty about them, and which must commend themselves at once. The cut, and what follows, will make it very plain.

The shutter is named after the inventor, who, for the past eight years, has been connected with the photographic stockhouse of Wilson, Hood & Co., where he has had the opportunity of seeing the various makes of instantaneous shutters, and of noting any defects which they might have possessed. Never having seen one which was without imperfections, he resolved to acquaint himself with the laws of optics and endeavor to produce a shutter in which they would be modified, and, if possible, entirely corrected. It is known by inventors and manufacturers of instantaneous shutters, that there are many difficulties to contend with. The

most desirable thing is speed, and this can be obtained with comparative ease by means of large wheels, such as Mr. Muybridge uses, with which he claims to take a picture in the one five-thousandth part of a second; but while such large and cumbersome machinery may answer for such scientific experiments as he may make, it is hardly necessary to say that it would not do for the average amateur. Many other faults might be named, such as jar, weight, size, and shape of opening, manner of application, etc., some of which most shutters possess. As regards jar, the "Marcellus" shutter hasn't the slightest, and is no heavier than is consistent with strength. The opening is of such a shape as to give the sky the shortest exposure, which is conceded by all to be a great advantage. The exposure is made by the opening of one and the closing of another pair of semi-disks. These are suspended on pins removed from the opening a distance of three times its diameter, and have slots in them just below their fastening pins in which works a pin which is attached to a lever on the outside of the casing. Since the opening is removed some distance from the point of application of the force, it can readily be seen that the motion at that point will be multiplied several times at the open-



ing, thus enabling one to take a picture, when the spring is at its highest tension, in the one-fiftieth part of a second. The

beauty of this shutter is that its speed can be regulated at will by increasing or diminishing the tension of the spring and with the time attachment, by which a slow instantaneous or an indefinite exposure can be made. It can be made to fit between the lenses or on the hood, as the cap, the last of which is, for several reasons, preferable. All these points combine to make a very desirable shutter, and one which no photographer should be without.

*Directions for Using.*—For instantaneous work, set shutter as in drawing, with pin projecting from L' engaged in slot S, in lever L. When ready to make exposure, squeeze the rubber bulb (not shown in cut), which is attached to a piece of tubing, which is in like manner attached to end of air-pump, H. For time work, allow lever L to remain in the position it takes after springing; then place a finger under projection A on catch C, and turn it to the left until it rests on small projection from end of lever L; then with the end of lever L' in left hand, raise it, and with the middle finger of the right hand on A; press down until slot in catch C is opposite pin projecting from lever L'; then press down lever L' (this engages pin in first slot), then press down lever L and engage pin in slot S. When ready to make exposure, squeeze bulb and release it quickly; this opens the shutter. When the desired time has been given, squeeze the bulb again; this closes it. When a slow instantaneous exposure is desired, give the bulb two quick squeezes.

The manufacturers are Wilson, Hood & Co., No. 825 Arch Street, Philadelphia.

## OUR PICTURE.

In his charming brochure *The Unknown River—an Etcher's Voyage of Discovery*, Mr. Philip Gilbert Hamerton says: "It is curious how capable we all are of seeing people and things every day of our lives without being once prompted to ascertain anything further about them, whence they came, whither they go, what their past has been, or what may be reserved for them in the future."

Such indifference does not always spring from that sort of "familiarity which breeds



contempt," and it is therefore the more "curious" as Mr. Hamerton says.

The real cause is oftener the lack of ability to see and recognize the beautiful, and the lack of sufficient sincerity in the study of the artistic and the beautiful, to feel and understand them when they pass before us.

This thought came to us some time ago when witnessing the careful performance of the charming actress, Miss Charlotte Behrens (Mrs. E. Eugene Hume). On the occasion we speak of we visited the theatre on a professional errand, to get an impression as to how the stage could best be lighted by electricity for the purpose of making some photographs of scenes in the play. The piece was "Zitka," a Russian drama of considerable merit, and one calculated to provide an overworked, tired man with an entire diversion of thought.

Having formed an impression of the directions from which the electric lights should come in order to secure the best pictures, we settled down to the enjoyment of the play.

We soon discovered that the burden of the piece was upon Miss Behrens. We also discovered that she was not a mere actress, but a real woman putting her very heart and soul in her work—a young artist but possessed of a full sense of her duty to her audience, to her manager, and to herself, and yet playing as if the entire good name of her art depended upon her then and there doing her very best work.

Her part was a pathetic one—one of suffering and trial, and womanly heroism and triumph—but in all its phases she performed with artistic sense, and care, and understanding.

A very young woman, she is bound to win name, and fame, and fortune among the honorable women of her profession, for she continues to be a careful student of all the elements which make the great actress.

She is now delighting large audiences in this city, and presently will go elsewhere.

Circumstances made it possible for us to secure some negatives of her, of which we were glad to avail ourselves for the study of our readers. She will be recognized by many who see our picture, and they will not receive the plain, yet studied pose, of

the fair subject, or her tender face full of feeling, with the indifference that Mr. Hamerton accuses. It has been part of our purpose to prevent this.

And not only this, we desire that our familiarity with his splendid work may not cause indifference respecting the artistic abilities of our old friend Mr. D. H. Anderson, 785 Broadway, N. Y.

Before the war we sent our magazine to him in Richmond, Va. For a number of years, however, he has been the lessee of the old "Brady Gallery," at Broadway and Tenth Street. He has made less noise in our art than many another, but no one has done better work with a truer artistic feeling, and among the higher classes of citizens and strangers than Mr. Anderson. We think his negatives of Miss Behrens support these assertions.

Agreeable to our request no effort was made to secure a "fancy picture," but simply the character of "Zitka." In doing so the various changes in dress were made so that some of our readers will receive the plainly dressed Russian girl, the daughter of a physician; while others will see her in her bridal costume, the recognized of the Czar and Czarina.

All, however, will receive an example of excellent plain photography from the camera of an artist whose work will not be viewed with the "curious" indifference Mr. Hamerton insinuates.

Both to Mr. Anderson and to our fair subject are we all deeply indebted for the pleasure and instruction afforded us by their united efforts in the cause of art.

They give us "the refreshment of change," which keeps us from falling into the commonplace, and which gives us a push forward in our art.

In conversation with Miss Behrens, she said "I am always studying to excel. What position I have, I have worked for. I expect no growth unless I continue to work."

Here is the secret of her success—the secret of any success. Mr. Bulwer Lytton once wrote: "What men want is not talent, it is purpose; in other words, not the power to achieve, but the will to labor." And, again, said Cobden, "Luck is ever waiting for something to turn up. Labor with keen

eyes and strong will, will turn up something."

Here are some good, practical New Year lessons for you fellow photographer. And if it ever falls in your way to witness the performance of this person so earnest in the promotion of her art, we are sure she will teach you a valuable lesson; and may old Sol grant you the light to see it.

The prints were made by Messrs. Roberts & Fellows, Philadelphia, on the famous N. P. A. paper imported for us by Messrs. E. & H. T. Anthony & Co., 591 Broadway, N. Y.

### THE OPEN CORNER.

BETTER ride on an ass that carries me, than a horse that throws me.—*Spanish Proverb.*

In other words, if you hit upon a brand of plates or paper, which in your hands produces the best results, such is far better for your pocket and patience than to be experimenting uselessly.

CONTROVERSY equalizes fools and wise men in the same way—and the fools know it.—O. W. HOLMES.

I think this translates itself. Even some of our wisest and best photographers, it seems to me, are giving great delight to the fools at present.

PROPERLY thou hast no other knowledge but what thou hast got by working.—CARLYLE.

"Experience is the best teacher," surely; and in nothing so truly so, as in photography. What you read is good—*very* good, but you want proof of what you learn by practice.

A HANDFUL of common sense is worth a bushel of learning.—*Spanish Proverb.*

The Spanish Solomon must have been a photographer, for he doth show much art in his speech.

If you meet with ill success, blame no one but yourself.—MENANDER.

For there are plenty of good books for

your help, and abundance of opportunity for you to practice. Never believe that you are done studying.

AUNT DOTTIE.

### THE INDIGNATION MEETING IN PHILADELPHIA.

The photographers of Philadelphia have been undergoing some rather unusual experiences of late. It appears that the price-list issued by the Eastman Dry Plate and Film Company for printing upon Permanent Bromide Paper for photographers was multiplied by one of the small dealers in stock in Philadelphia, and "distributed to the public." Thus the practical photographer and his patron were placed upon an equal footing. Inasmuch as a number of the good photographers of Philadelphia had purchased outfits for making Permanent Bromide Enlargements, it was considered by them to be unfair that they should have their margin of profit cut down by the means stated.

Thereupon, on the evening of October 25, a meeting of the craft was held in Philadelphia, where the subject was discussed, and a series of resolutions adopted, asking the Eastman Dry Plate and Film Company to reconsider their scale of prices, and to issue an advanced one for the general public.

On November 6 an adjourned meeting was held, when a reply was read from the Rochester establishment, and the subject very generally discussed. The practical result of all is, we believe, the adoption of an increased price-list for the public over the scale charged the photographers.

We have received full stenographic reports of the meetings, but as they are largely of local interest we hardly think a full report necessary to our readers. When such matters come up, a careful and calm discussion is usually sure to set matters right.

An oversight has evidently occurred somewhere, but we feel sure it was without intention to offend. The manufacturer and the dealer should protect the photographer in every possible way, for their interests are mutual.

### HOW QUICK IS "INSTANTANEOUS?"

At a late meeting of the Photographic Society of Philadelphia, the question was asked, "What can be considered as the 'Instantaneousness' of gelatine plates, and the well-ascertained shortest exposure attained?" It was explained by the chairman that this question had been asked by a United States army officer in the Ordnance Department, who was engaged in experiments in photographing projectiles during their flight.

Mr. David Pepper, Jr., stated that a picture of a ball falling before a screen had been taken with one of Mr. Muybridge's fastest shutters in the 1-000th of a second. On the screen was a scale eight feet long, the ball was quite sharp, though there was a perceptible blur from which the time was calculated.

Mr. David Cooper, who was present as a visitor, referred to a picture made by Mr. W. T. Gregg, of a projectile being fired from a dynamite gun. The shell was shown a short distance in front of the muzzle of the gun, and was blurred about one-half its length. The velocity of the projectile was stated to be 1200 feet per second. In front of the shell could be seen what was claimed to be a cushion of compressed air. This cushion had the appearance of a comet, and was supposed to be the cause of the difficulty or impossibility of hitting with a pistol bullet a suspended eggshell or handkerchief.

Captain MacNutt, of the Frankford Arsenal, when asked for his experience in photographing the flight of projectiles, stated that he had been trying for two years to devise

a means to accomplish this. The difficulty seemed to be in securing sufficient rapidity of exposure, at the same time having a position near enough to get a respectable sized picture. The projectile, moving at from 1200 to 1600 feet per second, would require a faster shutter than he had yet seen. It would also be very hard to catch it without some delicate devices, which he had been unable to command.

That it is the fault of the plate, and not of the shutter, is surely not the case where the image is blurred, as seen sometimes in photographs of moving trains, trotting horses, etc. Did the shutter move at the proper rate of speed, then a lack of a proper degree of sensitiveness in the plate would prevent any image being formed. The subject is, he understood, being pursued under the direction of Herr Krupp, and if any results are obtainable, they will surely be gotten with the facilities he is able to command.

The high velocities of projectiles at the muzzle, has led to the suggestion that they might be gotten at a point, say 500 yards off, where the velocity is considerably reduced, but this has placed other difficulties in the way, chief among which is exposing while the projectiles is in the field of view.

Mr Bartlett expressed his doubts whether the most sensitive film is capable of recording the presence of the cushion of air preceding the projectile, inasmuch as the atmosphere, even under the greatest pressure, would be invisible. He thought we might as well expect the photographic image of the temporary vacuum which follows the ball.

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## Editor's Table.

HAPPY NEW YEAR!!!

*The American Annual of Photography and Photographic Times Almanac* is before us. It is a splendid book, and reflects great credit upon all who were concerned in its preparation. It is

illustrated by photo-mechanical processes—containing two full-page photogravures and two Mosstypes, which are excellent examples both of artistic photography and good reproduction—Scanning the index, the unusual number of contributions from foreign writers is notable. From

England Mr. H. P. ROBINSON treats of "Things to See in Landscape Photography"; Mr. G. WATMOUGH WEBSTER, "Rival Developers"; Mr. W. J. HARRISON gives some "Notes on Lantern Practice"; Mr. ASHMAN and Mr. BURTON give valuable hints on gelatin and emulsions; and Mr. ANDREW PRINGLE on films. Germany is well represented by Dr. LIESEGANG, writing on "Aristotype Printing"; Mr. OBERNETTER and Mr. GELDMACHER on "Solar Enlargements"; Mr. EILENDER on "Retouching"; Mr. SCHUMANN on "Quartz in Spectrum Photography"; and Messrs. SCHWIER, KINDERMANN, and TILGMANN. Then our home writers nearly all have a say, and speak it in very interesting words, many of them. Almost every department and aspect of photography has its contribution, and every one will assuredly find something among them that fits him exactly. Yet there could not be a greater difference between two photographic year-books than there is between the *Annual* and *Mosaics*. The latter was made up of short articles, with hard, practical points, such as are useful to the professional photographer in his daily work; their chief end, use. The other goes more into the theories, the newer applications and inventions, and the artistic side of photography; and is a book the amateur, above all, should have. Indeed, not one of these should be without it. He will find it, if he loves his pursuit, the most interesting sort of reading, and full of suggestion.

Perhaps the most solidly valuable part of all the book is the tables appended. Great credit is due to the care and labor of the editors in collating these. Besides the usual seasons and sunsets, chemical symbols and solubilities, weights and measures, and thermometer and barometer readings, we have for the first time complete lists of the photographic periodicals and photographic societies of the world; of books on the art published and technical patents issued in 1886; of approved standard formulæ; and tables of enlargements and reductions, and of comparative exposures, and equations relating to foci. These are useful to us all, and crown the end of an excellent book. 50 cents, cloth \$1.00.

FROM the PHOTO-ENGRAVING Co., 67 Park Place, New York, we have received a handsome book of samples of their work.

A FEW weeks ago an old practical photographer, one of the few of the fine old school, progressive, yet ripe, sat in our office and had a long talk with us. During it we learned that he

had taken our journal ever since its birth. MILTON T. CARTER was a survivor, a veteran, of what was once a splendid band of photographers. Now word comes that he has gone. He died at his home in Worcester, Mass., late last month, after a brief illness. We could say much concerning him, but the letter of his son, Charles M. Carter, agent of the Massachusetts Board of Education, speaks better than we can, and we add it:

DEAR SIR: In addressing you I feel as if writing to a friend, for it has been my pleasure to see the PHOTOGRAPHER ever since its birth. This privilege has been owing to the fact that during its existence my father, Mr. Milton T. Carter, of Worcester, has been a subscriber. Alas! he is now dead, having passed away Thanksgiving morning, after a brief illness. I have always known that he possessed naturally the true artist spirit, and I have often thought he might have become a great artist. Many of his sketches from nature show true artistic feeling. As it was, his tendency in this direction made his photographic work highly prized, and now that he has gone I find that his patience and gentlemanly bearing have endeared his memory to a wide circle of friends.

Yours sincerely, CHARLES M. CARTER.

GEN. CHAS. G. LORING, Superintendent of the Museum of Fine Arts, Boston, says of *Lantern Journeys*, Vol. III.: "Many thanks! It is very entertaining reading to one who has been over the ground. And I shall profit by it to get some of the photos."

PICTURES RECEIVED.—From Mr. L. FARINI, Bridgeport, Conn., comes one of the most remarkable, and at the same time most pleasing, instantaneous pictures of a trotting horse we have ever seen. It is pleasing, in that it is marvellously clean and well modelled; not at all in the usual silhouette style, but all the main muscles of the horse and his harness clearly visible. Yet that he was going is proved by the fact that all his feet are off the ground. Mr. FARINI caught him in the air. He sends us also proofs of back and face views of a "cute" little girl, in rough ulster and high cap, in a gate. Mr. D. T. BURRELL, of Brockton, Mass., sends us two wonderful photographs of the fire which recently destroyed the Opera House block in that town. They were taken half an hour after midnight, by firelight alone, on plates made by Mr. BURRELL himself, exposed ten seconds. They are really splendid pictures, and the dark

lines of walls, rafters, and girders showing against the fire, with the crowd in front, give them a most dramatic effect. They are an extraordinary achievement. Mr. BURRELL writes that they are very effectively colored. We should think they would be, they are so even when plain.

THE PHENIX PLATE Co., Worcester, Mass., send us their little pamphlet of directions for using their novel and useful Argentic dry plates. It gives formulæ for all the solutions, full directions for manipulations, and for preventing or remedying all the possible accidents to which plates are liable. Their plates, which give a positive at once, ready to deliver in half an hour, are proving very useful, both to amateurs and professionals.

We would call attention to the article in this number by Dr. REYNOLD W. WILCOX, "Photography the Handmaid of the Physical Sciences." Dr. Wilcox is one of the rising young physicians of this city, and also finds time to be an earnest experimental photographer. This article shows his thorough acquaintance with the art. He is the son of Col. V. M. WILCOX, of Messrs. E. & H. T. ANTHONY & Co.

LAST year we gave our readers a series of views from the four quarters of our country. This year we have something better still—a series of child pictures from North, South, East, and West. We already have negatives for all, and can promise that our readers shall see some rare studies of the little ones during the year.

ON letters and circulars from the dealers, on little slips, and stamped on the backs of envelopes, comes the information, "*Mosaics* for 1887 is here." The little annual has never met with such a welcome. We are nearly sold out, but all the dealers have it.

"I AM glad you sent me the back numbers. Yours is the best photo. journal published. Enclosed find \$5.00 for PHILADELPHIA PHOTOGRAPHER for 1887.

"R. F. WILLIAMS, Kentucky."

MESSRS. E. & H. T. ANTHONY & Co. issue a sixth edition of No. 21 of their photo. series—"On the Choice and Use of Photographic Lenses," by J. H. DALLMEYER. It contains considerations on portrait and view lenses, which every one

who owns or means to own a lens should read, and several articles on the same ground are added. It is hardly necessary now to do more than give the author's name to tell the photographer that this little book is a most valuable one.

We would call attention to the large reduction in price of the Talcott mounts. Send for circular.

"SINCE ordering the 110 copies of your *Mosaics*," writes Mr. Sam C. PARTRIDGE, of San Francisco, "I find I already have more orders in advance than books on the road to me." So he finds twenty copies more needful for his out-of-town customers.

ON Tuesday evening, December 7, the Photographic Section of the American Institute had the pleasure of listening to a most interesting illustrated lecture by Mr. P. G. CUSACHS, President of the Kit Kat Club, entitled, "Rambles in the Mountains of Catalonia." A week after, was held the first regular winter meeting of the Society of Amateur Photographers of New York, when Prof. S. B. NEWBURY, of Cornell, read a paper on "Unboiled Emulsions," and Dr. J. WEST ROOSEVELT exhibited an improved apparatus for micro-photography.

Mr. A. McCORMICK, of Oxford, Pa., recently passed the twenty-fifth anniversary of his photographic life, all spent in the same town. He opened in 1861, when Oxford was quite a small town, and has been steadily rising ever since. He says:

"We are now taking the photographs of babes whose fathers and mothers we photographed when they were babes. In order to keep posted in the photographic art, we have in these twenty-five years paid in subscription to weekly and monthly photo. publications over two hundred dollars. We have studied the art, not merely as a process of taking pictures, but as a process of taking pictures in an artistic manner; and as to correct portraiture, we claim that our work is not excelled, either as true likenesses or in fineness of finish."

We extend our hearty wishes for continued success in the future to Mr. McCORMICK. We would emphasize his very pertinent point about the journals, and can testify as to it, since we have had him on our list from the beginning, so that at least \$120 of his \$200 has come to us. He seems to think it has paid. No doubt it has helped to make him what he is—the photographer of his own town and all others for miles around.

THE sale of *The Century Magazine* has gone up over 30,000 copies in six weeks, since beginning the "Life of Lincoln." The January instalment, which is said by the editors to be of most surpassing interest, occupies thirty pages of the magazine, and treats of Mr. Lincoln's settlement in Springfield, his practice of law in that city, the Harrison campaign, Lincoln's marriage, his friendship with the Speeds of Kentucky, the Shields duel, and the campaign of 1858. The illustrations are numerous, including portraits of Joshua Speed and wife, of Mrs. Lucy G. Speed, Milton Hay, President Harrison, General Shields, William H. Herndon (the law partner of Mr. Lincoln), and Mr. Lincoln himself, from the photograph presented by him to Mrs. Lucy G. Speed, in 1861.

ANOTHER good photographer of long experience, Mr. IRVING SAUNDERS, Alfred Centre, N. Y., who has taken our journal for years, now writes for us, renewing his own subscription, to send it also to his brother, "who is just starting in business." He writes: "I thought it would be a good Christmas present to send to him." We think it was, and wish, and may promise, him much enjoyment from it.

Mr. WILLIAM BROWN, Modesto, Cal., receives a fine commendation from his local newspaper for his work and enterprise. He is ambitious and artistic, and seems to employ the best of everything in his work.

How the veterans write when they renew their subscriptions:

"I have had it for nineteen years, and am not going back on it now. ANDREW PRICE,  
Healdsburg, Cal."

"I have taken your journal ever since it was published. S. B. HOFFMEIER,  
Easton, Pa."

WE have printed enough of the current issue of our magazine to send a copy to everyone who subscribed for 1886, as a New Year greeting. We shall not repeat this, and express the hope that prompt renewals will render it unnecessary.

A COMMENDABLE ENTERPRISE.—We learn that the AIR BRUSH MANUFACTURING Co., of Rockford, Ill., have lately established a directory of artists who use the Air brush, for the accommodation of these and of persons desiring to employ such artists. The Company has been

in frequent receipt of inquiries for artists who could work the Air brush, often large establishments offering excellent situations. The demand has far exceeded the supply of artists of whom the Company knew, and hence they have arranged the above very excellent medium of communication.

The remarkably effective instrument made by the Company seems to be coming more and more into general favor, supplanting ordinary crayon and water-colors. Driving a spray of ink without contact, its advantages in working on a gelatine or albumen surface are enormously above any other agent. Wide-awake photographers recognize this, and we can assure young artists that it will pay them to learn how to use it. It may not be long before it will become a necessary part of their education.

CHRISTMAS remembrances have come in to us from all sides of our country more profusely than ever, with warm, kind words. We heartily appreciate all, good friends. Let us hope for a good year together.

RENEWALS for 1887 come thick and fast. An old subscriber says: "Send it for *two* years, and find the money herein." From another: "Long life and prosperity to you and the P. P." From a modest one: "Here is the V., late but sure." A California subscriber—a college professor—writes: "With pleasure I renew for 1887." And so, hundreds seem bound to sustain and support the P. P. for 1887.

In our first February issue will appear an admirable portrait group by Mr. P. H. ROSE, Providence, R. I., with some admirable Moss-types of his studio and reception-room—all elegant.

In March, a mosaic from the St. Louis collection of SHULZ & SUCK, with an autoglyph of the studio of Mr. SUCK, of Carlsruhe, will be a real surprise for our readers—different from anything they have ever had.

WE regret to announce the demise of our old friend, subscriber, and worthy photographer, Mr. L. C. MUNDY, Utica, N. Y., December 19th. A record of his work by his old employer, W. J. BAKER, Esq., Buffalo, will appear in our next.

To Messrs. A. A. BALDWIN, Farmington, Conn., ALFRED FREEMAN, Weatherford, Texas, and many others, many thanks for lovely Christmas cards, packets of views, and what-not, which overerrowed the table Editorial.





LOESCHER & PAETSCH, PHOTO.

F. GUTEKUNST, PHOTOTYPE.

Portrait in Vandyck Style.



THE

# Philadelphia Photographer.

EDITED BY EDWARD L. WILSON.

Vol. XXIV.

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No. 290.

## THE ARTISTIC SPIRIT IN PHOTOGRAPHY.

BY ENOCH ROOT.

A MORE widespread cultivation of the æsthetic features of this beautiful art-science is greatly to be desired, particularly at this time, when such a marked progress in art knowledge is going on among the masses of the people of our country. Now, while it is true that there are a number of photographers, both professional and amateur, who are producing meritorious work, and are fully alive to the importance of artistic excellence therein, there is still a large army of co-workers whose aspirations extend no further than the production of fair technical results, in which high finish and recognizable features secure the patronage of those who never seek any higher quality in a picture than smoothness and a likeness. To this latter class of workers it is persistently urged the advantage and importance of paying more attention to the higher expression of their art. It is by this means that photography may hope in time to take its rightful position beside its now more honored sisters of the graphic arts.

It is a shallow and thoughtless stricture of photography that would relegate this fascinating and versatile art to a mere mechanical process of reproducing nature, because, forsooth, so many treat it in this manner. Such critics, blinded by prejudice, ignore the great number of beautiful and artistic productions; the work of earnest artists, who are seeking to develop its art

capabilities; and who, by their result, have clearly indicated that here is an almost infinite field for art endeavor open to the student of nature, through which there are innumerable unexplored pathways leading in every direction.

True art is above mere means or material. It is an outward expression of the individual thought and aspiration, and is often given through the simplest of mediums. Palissy, at the potter's wheel; Lucca della Robbia, with his coarse terra-cotta ware; Benvenuto Collini, in his metal work, each gave as true an expression of art development as Michael Angelo with his chisel, or Raphael at his easel. The stick used by the youthful Giotto in tracing his first rude sketches on the soil of the Florentine hills gave an indication of his genius as marked as that afterward accomplished with his brush.

"Art is the expression of thought, of feeling, in the highest and the best." Is there, then, no thought, no inspiration, no selection, in the use of the camera? True, too often, alas! there is none; but the same may be almost as frequently said of the use of the brush of the painter or the modelling tool of the sculptor.

Shall we proclaim the thousands of oil daubs, executed throughout the country by inferior artists, works of art, and refuse that title to a studiously produced photograph? Will not the judicious use of artistic knowledge give a more graceful pose to a figure, a more effective arrangement of light and shade, a more harmonious disposal and selection of accessories, and in every way

serve to obtain the fullest expression of the whole subject, whether a figure, a group, or any natural scenery? Does it change the nature of its art aspects whether this knowledge, this sensibility, is used on a subject for the camera or one for the canvas? Is not the capacity in a photographer to produce superior artistic results of the same quality that inspired the great painters and sculptors to whom the world has given its admiration?

In one respect photography can make no claim, and that is in the region of the ideal. Its capabilities lie in the realistic art of the present and the near future, rather than in the traditions of the past. It is in sympathy with the time which demands of its art, as well as its literature, naturalistic truth rather than unreal mystery, with the school of Constable, Courbet, and Corot in landscape, with Manet, Millet, and Meissonier in figure, and with the main tendency of our best American artists.

Rossetti, years ago, before general attention had been given to the art possibilities of photography, in one of his admirable essays writes: "The question of the range of subjects proper for fine art becomes year by year more needful of solution as photography advances. To us it seems pretty clear that for everything in the way of mere transcript, photography is the thing; it is easier, more certain, more ample, and in almost every respect, as far as this object is concerned, more beautiful, and, to crown all, incomparably cheaper. It has already made huge inroads upon the field of art, and is morally sure to monopolize it at no distant day. What photography cannot do is to color or invent. To say that it never will be able to color would be extremely rash; some glimmerings of that power in photography have already been bruited, and there is no knowing where this or any other human conquest of the forces of nature will stop.

While it is true in regard to what this most eminent writer of high art says of invention in photography, the artist by this means still has left for selection and combination the vast infinitude of nature's beauties in endless form and variety, and possesses by its extreme rapidity of execution and accu-

racy of detail an advantage over every other method in the production of pictorial art. From year to year new ideas and processes are being added, so that, since Rossetti wrote the above encomium on photography, a huge stride has been made in its art development. Among the most important of these is the power of seizing upon the forms of nature in rapid motion by means of the extreme sensitiveness in the manufacture of dry plates, the ease by which they are manipulated, and the recent introduction of the orthochromatic process, by which the most essential quality of color, its relative tones, are preserved in their translation from nature.

Previous to the use of instantaneity of exposure, how little accuracy was given in the representation of the moving phenomena of nature! The flitting clouds of the heavens, the ever-shifting waves of the sea, and moving forms of vessels, men, and animals, too restless for analytical study, were more or less conventionally rendered. But the lightning plates, with their exactness, have taught both the painter and designer the true forms, and in consequence both the canvas and engraving exhibit more precise and beautiful transcripts of nature in action.

Many of the leading painters are fully alive to the benefit of photography, not only in obtaining memoranda and material for use in their profession, but for its possibilities in its own peculiar realm of art. The most distinguished professor of painting on the Pacific Coast is at the head of the Amateur Photographic Society of San Francisco, and gives enthusiastic talks on its art advantages. The leading sculptor of Chicago is always accompanied in his summer vacation with a photographic outfit, while the eastern painters furnish many a devoted amateur.

Nor is this attraction for the camera in the least surprising. The rapidity and facility of execution, as the inspiration of some glowing and picturesque view lays before the artist, a scene that from the nature of its illumination soon loses its effect; the immense number of valuable memoranda and souvenirs of travel that can be obtained in a short time and with but little labor, have a captivating influence over many a

lover of nature to whom life is too brief to devote to only a few of its charms.

While the intelligent amateur is doing much toward a higher development of the artistic spirit in photography, the work cannot well go on to perfection without the aid of the professional operator. By this latter constant contact with the public, an opportunity is afforded of moulding readily the taste of the people to a greater appreciation of the essential elements of true art, and by long experience can more successfully overcome the technical difficulties.

But the constant routine of the studio is not favorable to art progress. Therefore let the gallery artist shake off, from time to time, the daily cares, and go forth to outdoor nature with his camera and enjoy the pleasure of an amateur, in the true sense of that much misused term. From such an excursion the participant will return refreshed in mind and inspired by nature's charms to an incentive for the production of better work in the no less artistic but less fascinating field of portraiture.

Nature abounds in beautiful compositions of some form or another in every locality. An old dilapidated building, with its picturesque surroundings; a group of cattle in a brook; a winding path among overhanging trees; the buttressed ledge of rocks, with sunlit, trailing vines over dark recesses reflected in some limpid pool; the rock-bound streamlet; the gnarled, fantastic tree trunk—pictures everywhere.

A love and study of such scenes of beauty is one of the purest joys of existence—a power to translate such, an ever ending source of delight. Such study is in harmony with our highest well being. It leads man away from mere animal sense, which clogs and falls, into a clearer atmosphere, where the intellect is quickened, the mind cultured, and the soul brought into nearer relationship with the Supreme Creator of all beauty and goodness.

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### NOTES FROM LONDON.

BY T. C. HEPWORTH, F.C.S.

THERE is a well-known picture in one of our public galleries, I forget which, entitled "The Enthusiast." It represents an old

man with a propped-up gouty foot, sitting indoors, angling in a washing tub in which he has placed some small fish. I was reminded of this picture this morning, by the reflection that there must be round about us a number of photographic enthusiasts of a somewhat similar type. I happened to be talking to one of the partners in a large firm of apparatus manufacturers, and he told me that there was just now such a demand for instantaneous shutters, that not one was left in stock! This in an English December, with its shroud of darkness, mist, and fog. It would be amusing if one were able to trace some of these shutters to their destinations, and to watch their new proprietors at work with them. Perhaps they belong to those gullible individuals who believe that drugs, chemistry, photography, and more especially electricity, can do anything natural or supernatural. These are the people who would, in past times, have believed in witchcraft, gnomes, and all the other bogies conjured up by ignorance.

But witchcraft is not yet dead in England. I was photographing this summer in a quiet village on our east coast, to which the civilizing screech of the railway whistle has not yet penetrated. Opposite my temporary home was a cottage in which dwelt a woman who, only a few months before had been bewitched by a beldame, who lived in another village two miles away. At least so she declared, and believed. Others, too, believed in her theory, for three men, presumably sane, actually crossed the fields at midnight and dragged the reputed witch from her bed, so that she might accompany them to relieve her victim. They were convinced of the truth of the charge against this poor old creature because, as they walked her across the fields a terrible thunderstorm came on! I hope some day to have the opportunity of visiting this witch and securing her photograph, and if the latent image of a black cat, or somebody else blacker, does not come up under development as an addendum to the old woman, I shall be much surprised.

Professor Tyndall is, unfortunately, not well enough to undertake his usual course of Christmas lectures at the Royal Institution, addressed to young folks, but his place is worthily filled by Professor Dewar, who

serve to obtain the fullest expression of the whole subject, whether a figure, a group, or any natural scenery? Does it change the nature of its art aspects whether this knowledge, this sensibility, is used on a subject for the camera or one for the canvas? Is not the capacity in a photographer to produce superior artistic results of the same quality that inspired the great painters and sculptors to whom the world has given its admiration?

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While the intelligent amateur is doing much toward a higher development of the artistic spirit in photography, the work cannot well go on to perfection without the aid of the professional operator. By this latter constant contact with the public, an opportunity is afforded of moulding readily the taste of the people to a greater appreciation of the essential elements of true art, and by long experience can more successfully overcome the technical difficulties.

But the constant routine of the studio is not favorable to art progress. Therefore let the gallery artist shake off, from time to time, the daily cares, and go forth to outdoor nature with his camera and enjoy the pleasure of an amateur, in the true sense of that much misused term. From such an excursion the participant will return refreshed in mind and inspired by nature's charms to an incentive for the production of better work in the no less artistic but less fascinating field of portraiture.

Nature abounds in beautiful compositions of some form or another in every locality. An old dilapidated building, with its picturesque surroundings; a group of cattle in a brook; a winding path among overhanging trees; the buttressed ledge of rocks, with sunlit, trailing vines over dark recesses reflected in some limpid pool; the rock-bound streamlet; the gnarled, fantastic tree trunk—pictures every where.

A love and study of such scenes of beauty is one of the purest joys of existence—a power to translate such, an ever ending source of delight. Such study is in harmony with our highest well being. It leads man away from mere animal sense, which clogs and falls, into a clearer atmosphere, where the intellect is quickened, the mind cultured, and the soul brought into nearer relationship with the Supreme Creator of all beauty and goodness.

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### NOTES FROM LONDON.

BY T. C. HEPWORTH, F.C.S.

THERE is a well-known picture in one of our public galleries, I forget which, entitled "The Enthusiast." It represents an old

man with a propped-up gouty foot, sitting indoors, angling in a washing tub in which he has placed some small fish. I was reminded of this picture this morning, by the reflection that there must be round about us a number of photographic enthusiasts of a somewhat similar type. I happened to be talking to one of the partners in a large firm of apparatus manufacturers, and he told me that there was just now such a demand for instantaneous shutters, that not one was left in stock! This in an English December, with its shroud of darkness, mist, and fog. It would be amusing if one were able to trace some of these shutters to their destinations, and to watch their new proprietors at work with them. Perhaps they belong to those gullible individuals who believe that drugs, chemistry, photography, and more especially electricity, can do anything natural or supernatural. These are the people who would, in past times, have believed in witchcraft, gnomes, and all the other bogies conjured up by ignorance.

But witchcraft is not yet dead in England. I was photographing this summer in a quiet village on our east coast, to which the civilizing screech of the railway whistle has not yet penetrated. Opposite my temporary home was a cottage in which dwelt a woman who, only a few months before had been bewitched by a beldame, who lived in another village two miles away. At least so she declared, and believed. Others, too, believed in her theory, for three men, presumably sane, actually crossed the fields at midnight, and dragged the reputed witch from her bed, so that she might accompany them to relieve her victim. They were convinced of the truth of the charge against this poor old creature because, as they walked her across the fields a terrible thunderstorm came on! I hope some day to have the opportunity of visiting this witch and securing her photograph, and if the latent image of a black cat, or somebody else blacker, does not come up under development as an addendum to the old woman, I shall be much surprised.

Professor Tyndall is, unfortunately, not well enough to undertake his usual course of Christmas lectures at the Royal Institution, addressed to young folks, but his place is worthily filled by Professor Dewar, who

delivers a course of six lectures on the Chemistry of Light, and Photography. The subject is sure to prove attractive, for so many young people nowadays are beginning to practise photography. Most of our large schools have their photographic societies, and we may feel convinced that the best workers in them are not the dull boys.

Lectures at the Royal Institution are always well attended. Apart from their high quality, it is the fashion, to a certain extent, and among a certain class to be seen there. It is sad to think of those poor persons who are bound by social considerations to go to places where they hear, but cannot understand. One day I remember being at a lecture, the subject of which was the Fleuss Breathing Apparatus, which enables a man to enter into, and remain for a long time in a noxious atmosphere without suffering any harm. In one experiment the operator was shut up in a glass cupboard, which was then charged with carbonic acid gas. To show that this medium was not respirable, he had provided himself with a box of matches, which he, one after the other, endeavored to ignite, of course, without success. I overheard the comment of a lady visitor at the conclusion of the proceedings. "What a truly charming lecture, but what a pity those tiresome matches would not catch fire."

The average Britisher always feels an inward chuckle of delight when he can point to something that they cannot do better in France, and he is now pleased with the information that the stellar photographs taken some months ago in Paris, by the brothers Henry, have been eclipsed lately by some taken by Mr. Roberts in England. These new photographs lately formed the subject of a paper brought before the Royal Astronomical Society, when their author said that he had carefully counted the number of stars shown on three square inches of one of his enlarged pictures, and had also counted the stars on the corresponding spaces in the Paris photographs. His own photographs gave an average of ninety-one stars per square inch, against fifty-five stars per square inch in the French negatives. These photographs were taken with a reflecting telescope of twenty inches aperture. Mr. Roberts is ex-

pectantly waiting for a sufficiently clear night, in order to take a photograph of the pleiades, to which he intends giving an exposure of five hours!

Photography applied to things minute, seems to keep pace with the wonderful things achieved by the camera in photographing the stars in their courses. Dr. Crookshank, who has done much valuable work in the direction of photomicrography, and who showed to the Royal Microscopical Society, some time ago, several photographs of bacteria, has recently exhibited to the same society a photograph showing the flagella of a *vibrio*. This is a thing so difficult to see in the microscope that its existence has been doubted. Here again we have the startling fact brought before us that the camera can see and record more than the human eye is capable of appreciating. "The eye is not satisfied with seeing," said the preacher, and the old, old words have to-day a new significance in the light of modern research.

I must not conclude my "Notes" this month without wishing you and your readers, Mr. Editor, a happy and prosperous new year. I hope that each and all will endeavor in 1887 to strike out in some new direction, and will do their best to produce something a little out of the common rut of photography. Some of my friends have lately shown me pictures which are of this nature. The most original and curious one is a photograph of the mouth of the hippopotamus in the Zoological Gardens, taken while that cheerful beast was in the act of yawning. I took a transparency from the original negative of that fearful cavern, and projected it by the lime light on an eighteen-foot screen. The effect was terrible, and quite beyond my powers to describe.

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### PHOTOGRAPHS OF LIGHTNING.

WE have received from Dr. H. G. Piffard of this city, some more very remarkable photographs of lightning. Some of them make one tremble when viewing them; such a terrible idea of velocity and power is conveyed by the irregular lines created by the descending fire or thunder bolt.

In one of the pictures there are as many as six lines of what seem to be electric light,

some speeding, leaping across the heavens, and some plunging, like great serpents, head first into the sea.

One of our intelligent correspondents, Mr. C. G. Busch, of Claremont, N. H., questions the assertion that these are all lines of lightning, and sends us some very interesting theories, from which we quote in order to start interest on the subject among our scientific readers. Mr. Busch's letters are written after seeing Dr. Piffard's pictures. He says:

MR. EDWARD L. WILSON.

DEAR SIR.—I shall not go into a controversy about it, but will state a few facts, which please consider. We are after the truth of the thing, and I myself should like it very much to be set aright if I am wrong.

I have seen an unobscured descension of a streak of lighting, and this was in perfectly straight lines, but zigzag. Then I have observed hundreds of lightning flashes, and, of course, have tried to see the same phenomena again, but saw, most always, curved and irregular lines. I could not understand it. But, by patient waiting, I found the streaks of illumination were very much alike, to be seen nearly in the same spot one after another, waiting until the cloud drifted by, I saw, time and again, the next cloud following having the same contours, or nearly so, as what is mostly called a streak of lightning, and resembling the flash I saw before. Just consider what is necessary to photograph a streak of lightning: first, darkness, so that the plate does not get fogged; next, no rain falling, otherwise what will be the effect? each drop interfering will act as a disperser of the light, and you photograph the effect of illuminated rain drops and not the streak of lightning. Then you need about eight to ten cameras to cover about the horizon, three instruments would not be enough to cover one hundred and eighty degrees, and it would be a very lucky chance if your camera should be just in the right position, and just think, one thousand, yes, millions of rain drops, between you and the source of light, what a havoc they make with it.

There are very few chances to get a glimpse of a discharge of lightning unde-

filed and in a clear sky; I have only seen one; it was the first one of a cloud nearly in the zenith above me, and I happened to stand just facing in the direction the bolt descended; at first it moved in a nearly perpendicular direction, with a few short, or apparently short side jumps, and the last jump was rather remarkable, it struck the ground under an angle of about eighty degrees. I will not say that the impression on plates which I have seen are not the effect of lightning, but they are certainly not photographs of the track the bolt (as it is commonly called) of lightning made. Please observe carefully a thunder storm, and the apparent track of the lightning, and after the cloud passes by; look at the clouds which come in sight next, and then draw your conclusions if you saw the actual lightning or only its effects.

The duration of the descent of the lightning I saw was about half a second, because I had time to think what its course would be, and expected it to be nearly perpendicular, but was thrown out of my reckoning entirely; the bolt struck at least one hundred feet to the right of where I expected it to.

Mr. Busch writes later as follows:

Yours of December 2d received. The horizontal line is, without any doubt whatever, the reflection from the next layer of clouds coming up, and the left hand vertical streak, also the reflection from a cloud. You see those contours or formation of clouds during the summer season very often, and I call them the most picturesque to be seen; one sheet of dense vapor behind the other, with somewhat rounded edges. If the clouds come just above the horizon of course the illumination seems to reach the earth, but such need not so be the case, and, in fact, is not the case. Of the two vertical lines, one probably, and if your drawing is nearly a fac-simile, the middle of the whole would seem the correct one. But if a sheet of rain drops were between the camera and the track of the discharge, the distortion of the light would be so much that you could not get any correct image; just think of passing light through a glass globule or a drop of water. You know it is impossible; all the rays will be refracted.

That is, if a lens is stopped F/7 the exposure would be 1; if stopped F/20, eight times longer, and so on.

However, it is still requisite to determine the sensibility of the plates used. Several negatives of the same view, taken successively with various exposures, will soon decide this. Suppose these trials establish that the co-efficients given in M. Dorval's table should be reduced to a twentieth. We have now all the facts needful to determine approximately the duration of exposure in various cases which can occur.

As example, suppose we wish to take a view with masses of trees in the foreground, and in the middle distance a ruin covered with vegetation. The lens we have is a wide angle Dallmeyer, the sun is shining, the light good, the stop used is represented by the index F/25. The plates require an exposure of  $\frac{1}{20}$  second for M. Dorval's unit.

Referring to the above table, F/25 corresponds with the number 13. In M. Dorval's table for the conditions given above the exposure required is three times his unit, but as his unit for a panoramic view is twenty times too high for our plates, the exposure is expressed by  $\frac{13 \times 3}{20} = 2$  seconds.

This may seem long and complicated, but in practice it is not so.

Like Mr. Elsdon, the author strongly advises the use of a note book, and he gives the following schedule :

No.	Date.	Subject.	Light.	Kind of Plate.	Lens.	Index of Stop.	Time.	Exposure.

On the first pages he transcribes 1° the focal length of the lenses with the indices of the stops, or, he considers it preferable to write the indices on the stops themselves ; 2°, the table giving the exposures with the various stops, F/7 being taken as the unit ; 3°, Dorval's table of natural variations. This done, the above calculation takes but a few seconds.

He adds that Dorval's numbers are preferable to Burton's, which tend to over-exposure.

In terminating his paper he advises amateurs not to use their small stops too freely, but to use those of F/20 to F/30 (with good lighting). Doubtless the first give greater sharpness, but the second have the advantage of yielding more brilliant images in higher relief.—*Journal of Photo. Soc. of Great Britain.*

### UNBOILED EMULSIONS.\*

BY PROF. SPENCER B. NEWBURY,  
Cornell University.

LAST April I contributed to *Anthony's Photographic Bulletin* an article entitled "Notes on Emulsions," in which an effort was made to give a simple and certain method of preparing photographic plates of any grade of sensitiveness, together with the results of many experiments made to show the effect of different conditions of time, temperature, and proportion of ingredients on the rapidity and character of the resulting emulsion. The only new suggestion of any importance which the paper contained was the method of securing a fine precipitate of silver bromide (in my experience the chief stumbling-block in emulsion making), which was accomplished by adding first the silver nitrate and then the bromide, both in crystals, to a warm solution of gelatine containing alcohol. I have had several very gratifying letters from friends who have used this formula, all reporting com-

plete success in working it, and great satisfaction with the resulting plates. There are, however, some interesting results to be obtained by using this emulsion in an unboiled condition, of which my original paper contained no mention.

All writers on emulsion-making insist that the emulsion shall be "red by transmitted light." This is a condition which

\* Read before the Society of Amateur Photographers of New York.



implies great fineness in the precipitated silver bromide, and is very easily obtained by the method given above. In my earlier experiments, using other methods of emulsifying, I used often to obtain an emulsion of which a drop spread on glass and held against the light showed a reddish tinge, and used to suppose that the condition demanded had been secured; but never, until I hit upon this method of mixing did I see an emulsion which was "red by transmitted light" in the extreme sense of the phrase. The fineness of the precipitate obtained as I have described is such, that a drop of the emulsion spread on glass shows a bright orange-red color; a drop of emulsion mixed with a beaker of pure water imparts to it a pale blue opalescence, like that of some specimens of refined kerosene—an opalescence which does not disappear by subsidence even after standing for weeks. On boiling the emulsion, the particles increase in size, as is well known, and these peculiar qualities disappear. It occurred to me to try the use of this emulsion in an unboiled condition, principally in the hope of obtaining a fine plate, free from granularity, suitable for fine lantern slide work.

The operation of washing and making up an emulsion of this kind is the same as in the case of rapid, boiled emulsions; the coated plates, however, present, after drying, a very different appearance. Even though quite a heavy coating of emulsion be used, the film, after drying, is so transparent as to permit the shape of a gas flame to be seen through the plate with ease; the film is extremely glossy, and when held against white light shows the peculiar orange color of the freshly prepared emulsion. All who have worked with wet plates will remember that they show nearly the same color by transmitted light.

These plates are very slow, probably about as rapid as wet plates. They show a Warnerke sensitometer of 2 to 3, and in my hands require for an open view with Dallmeyer's rapid rectilinear lens, smallest stop, about ten seconds' exposure; whereas a rapid Stanley plate, showing 24 on the sensitometer, required an exposure of only one-half second. The resulting negative is, however, a very interesting and peculiar

thing. The shadows are represented by absolutely clear glass as in a wet collodion plate, while the lights show every grade of transparent brown color of increasing depth, like dark-brown glass. These qualities, especially the perfect clearness, good color, great density, and yet extraordinary range of half tones, and freedom from grain of any description, make the plate an almost perfect one for lantern-slide work. For this purpose oxalate developer gives, I think, the finest results, although I have made beautiful slides with the pyro-potash developer. The color of the slide is in either case a dark olive-brown, totally different from the cold gray tone which is always obtained with a rapid plate. The color can be changed to a deep purple by a very slight intensification with mercury and sodium sulphite, but I do not think that this is any improvement in most cases. I have used many commercial lantern-slide plates, and though some of them are excellent, I have never found any that were in any respect superior to the plates made in the simple manner that I have described. The operation of preparing them is so easy, that I have been able to train one of our students at Cornell to prepare the emulsion, coat the plates, and make slides from engravings or photographs, and he is now turning out three or four hundred slides a month for use in the various departments of the University.

As a general rule, it is probably better for the amateur or professional photographer to content himself with the plates which are to be obtained in the market, and not to encounter the many perplexities of emulsion-making. But the operations of making these slow plates are so simple, and the results so certain and so gratifying, that I heartily recommend anyone who has become interested in lantern slides to try the experiment of making some of these plates for himself. And after this task has been mastered and the manipulations learned, a very slight change in the proportion of bromide used, and half an hour's boiling of the emulsion, will give a plate as rapid as any in the market. I shall be very happy to give any further information that may be desired to anyone who thinks of taking up this last

accomplishment of photography, and can safely say that the pleasure of using the best commercial plates is far less than that of exposing and developing plates prepared by one's own hands.

The fineness of the precipitate of bromide of silver in the emulsion I have described, depends solely on the method of emulsifying, and the amount of excess of soluble bromide present appears to have no effect on the character of these slow plates. But if the emulsion is boiled, the proportion of bromide has a great effect. Using 32.5 grammes of silver nitrate, I find that with 28 grammes of potassium bromide and half an hour's boiling, a very rapid plate is obtained (23-24 on the sensitometer), which has about the quality of the best commercial plates. With 25 grammes of bromide, however, the plates are much less sensitive (15 on the sensitometer), but present almost exactly the qualities of the lantern-slide plates—*i. e.*, the same peculiar brown color and fineness of the deposit. Plates so prepared are those which I prefer for landscape work.

I have made some interesting experiments with these lantern-slide plates made with unboiled emulsion. In the first place, it has been stated that the medium in which the silver bromide is suspended has a great influence on its sensitiveness, and that it is partly for this reason that gelatine plates are more sensitive than collodion. To test this matter, I tried the experiment of soaking these lantern-slide plates in weak nitrate of silver solution, exposing them wet, and developing with an ordinary wet-plate developer, consisting of a solution of ferrous sulphate made strongly acid with acetic acid. The experiments were successful; the plates developed quickly and without fog or stain, giving a result much like a wet plate, but with a more reddish deposit. The sensitiveness was about the same as an average wet plate. Hence it appears that the bromide of silver in an unboiled condition is no more sensitive when suspended in gelatine than in collodion.

Secondly, it has been stated that the sensitiveness of gelatine plates over wet collodion plates is in part due to the fact that since the former contain no free silver

nitrate, it is possible to use alkaline or neutral developers—*i. e.*, pyrogallol and ferrous oxalate, which were said to be more powerful than acid ferrous sulphate. I find, however, that if two of the plates be given equal exposure, and one moistened with nitrate of silver solution and developed with wet-plate developer, the other developed directly with ferrous oxalate or pyro, the latter appears considerably underexposed, showing that the mechanical development is more energetic than the chemical.

It is well known that a rapid plate cannot be moistened with nitrate of silver solution and developed with wet-plate developer without the appearance of fog and stain. The fact that slow plates, made from unboiled emulsion, may be so developed, shows that the cause of this fog is to be found in the decomposition of the gelatine during the operation of boiling. I find, in fact, that plates made from unboiled emulsion may be successfully intensified with pyro and silver, in the same manner as negatives made on wet collodion plates.

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[Translated for *The Philadelphia Photographer*.]

### IMPROVEMENTS IN THE MANUFACTURE OF FLEXIBLE PLATES AND OF THEIR EMULSION.

BY G. BALAGNY.

SINCE flexible plates have been manufactured, not a day passed that Messrs. Lumière and myself did not work together in making the investigations and necessary studies, first, to obtain a better article, and then to find the means to facilitate the use of these plates so that it may be said they are more pleasant to work with than glass, and that they can take its place in all photographic work, since they give results absolutely identical as regards sharpness, transparency of the negative, and the rapidity with which the negative image is obtained. Consequently I thought it would interest the readers of the *Moniteur de la Photographie* to learn the improvements that have been made, and this I am about to do as briefly as possible.

The translucent support intended to receive the emulsion, from the first attracted

our attention. In the early stages of the manufacture there were mixed with it some impurities, some foreign bodies, bubbles (as it is said) of glass. Now the support is exempt from all these particles, which, however small they may be, were injurious to the final beauty of the negative. Moreover, and also in the beginning, the material not having sufficiently worked, gave us from time to time films that lacked polish on the back of the negative, producing a slightly unpolished surface. I have printed many negatives having this feature, and I never perceived the least change in the positive print. This could not be considered a veritable objection, but my dream always was to get a plate having the same characteristics that glass has, that could be cleaned and polished as it is. This improvement came of itself, inasmuch as I have already said the material of manufacture had not yet worked sufficiently to give us a support as smooth as enamel. To-day we have this polish as complete as possible on the back of the negative, and it is this sign which enables us to tell in the dark the right from the wrong side of the film. The mat side indicates that of the gelatine, whilst the brilliant side indicates the back of the plate, precisely in the same way as for glass, and we may say that the copy is identical. The care and supervision that M. Lumière gives to his manufacture lead me to hope that in future the support will always be as well prepared. In any case, and until the time at which the manufacture will proceed absolutely alone, all the preparations are sent to me at Paris for trial, and it is only after this examination that they are offered to the public.

If important improvements have been made in the support, the emulsion also that covers it has reached a very high degree of rapidity, and which I think cannot be exceeded. Here I shall indulge in a little theory, and I ask the indulgence of the persons who will read the following lines, as it is very possible that I may be mistaken; nevertheless it is one way of considering the rapidity of emulsions, and I will explain in a few words what I think to have remarked.

In the first place, when twenty-five

grammes of nitrate of silver are added to a solution weak in gelatine, but containing fifteen grammes of bromide of ammonium, every one knows that we obtain an emulsion of bromide of silver little sensitive to begin with. When a little film of this emulsion is spread on a strip of glass, and when we look through it at the flame of gas jet, we see that this flame is of a red color; if afterward we ripen this same emulsion, several cases may present themselves according to the process used. With heat—that is to say, ebullition—the emulsion first allows the passage of the yellow color, then the greenish-yellow, then the green, and finally sometimes the blue. If, on the contrary, ammonia has been used, we still have the yellow after the red, then the blue before the green, then slaty blue-gray, indicated up to the present time as the maximum of rapidity, but fogging sometimes. To resume: With the two methods known to-day to ripen the emulsion, we arrive at either the green or the blue; more often at the green with heat, more often at the blue, and sometimes at a decided indigo blue with ammonia. What we have to remark in all this is, that the increase of the rapidity of the emulsion proceeds in a parallel manner with the colors of the spectrum, the least rapid emulsions corresponding to the least refrangible rays, and the most sensitive emulsions corresponding to the most refrangible rays. We must also remark that the emulsion had not yet been able to extend over all the colors of the spectrum, since it has left aside the violet ray. That is to say, that up to the present time the means for maturing the emulsion had not, in my opinion, obtained their highest degree of perfection to enable them to give to the emulsion all possible rapidity. However this may be, and without wishing to say that further improvements will not take place in the future, it is evident that M. Lumière has just made a great step in the direction of sensitiveness. He now delivers to the trade an extra rapid emulsion, samples of which I have been experimenting with for more than three months, and which gives truly remarkable results. This emulsion, which has been called violet, although the labels are blue, was first applied to glass plates. But, as I have always sought for

flexible plates in emulsion having the maximum of rapidity, I naturally desired to have them prepared with this new emulsion. This is the great improvement which has recently been introduced in the manufacture of pellicles. Since more than a month they are all prepared with this violet emulsion, and in future, to avoid confusion, there will be but one mark, the *Flexible Violet Plates*.

To finish, I would remark that I have made experiments with this emulsion simultaneously on glass plates and on flexible plates. It is these last which, in all the experiments, have given the most complete and satisfactory results, as regards the details and the coming of the image. And this does not surprise me. When the luminous ray impinges in the flexible plate, it works entirely where it strikes, and without losing any of its force; whilst on glass it passes through and returns on itself, losing thus a large share of its actinism.

It may also be added that the new plates work admirably when exposed, and this has induced me to change entirely the development with carbonate of soda. The result of these investigations will be published in a forthcoming number.—*Paris Moniteur*.

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### FROM A PRACTICAL READER.

WE are glad to know that our magazine is useful to our readers. The writer of the following seems to read it with very practical eyes. He says:

The PHILADELPHIA PHOTOGRAPHER for November 20 has reached me. "Grouping Under the Sun," by C. Walton Hill, is fine and to the point—have Mr. Hill write for us again. "The Position of Portrait Photography as a Plastic Art," by Walter Kuhn, of Leipzig, is good. I wish all my patrons could read it. Altogether I find this number particularly interesting.

Yours respectfully, M. C. RAGSDALE.

SAN ANGELO, TEXAS.

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### IN MEMORIAM.

DIED, at his home, in Utica, N. Y., on the 19th of December last, L. C. Mundy,

one of the leading photographers of Central New York.

The writer knew the deceased so long and well that he feels that a few words of tribute from him cannot be out of place.

Mr. Mundy was a self-made man, and a striking example of what high aim, firmness of will, and a steady purpose can accomplish. His ancestry dated back to fine old English stock, but by family misfortune he was left entirely alone in the world at the tender age of eight years, and from that time on provided for himself.

Somewhat more than a quarter of a century ago the writer, himself but a youth, undertook to reopen an old and decayed gallery in Utica. In the opinion of experts it was a forlorn hope. At the same time a turn of fortune's wheel had left the young Mundy unemployed and penniless in the same town. He sought employment at the new enterprise, and I had to explain to him that my wife and a very small boy were already more help than the amount of custom could keep busy. He came a second and a third time, to be refused. "Very well," said he, "let me come and learn and you need not pay me anything; I will make myself useful." The next day saw him at work, and how useful he made himself it would take pages to tell. No task was too humble or too offensive for him to shrink from. He never needed to be told that this or that should be done; he *saw*, and did. Sometimes midnight found him hard at work. Often he would begin some duty with the summer's dawn.

Business came to the young proprietor, and he and the pupil prospered. In a little over three years, in connection with Mr. L. B. Williams, Mr. Mundy purchased the gallery, and as Mundy & Williams the new firm began for themselves, at the then established stand 12 Tibbett's Block. Subsequently they separated, and Mr. Mundy opened for himself. But always, whether as employé, partner, or sole proprietor, it was the same story of faithfulness, and the smallest and largest duties alike.

Who of his customers could begin to discern or appreciate the painful anxiety he felt, to always give them the very best he could? His work was never with him a

question of immediate profit, but how it could be best and most thoroughly done. And so in a quarter of a century he won for himself the respect of a whole city, and men were not ashamed of tears when we looked for the last time at his wasted remains, and left them amid flowers and fruits.\*

But it were useless to recite this faint meed of praise were it not for the lesson to be drawn. How easy it would have been for this boy to have sunk into utter obscurity, even into low and vicious practices! At eight years of age alone, abandoned, what chance was there for him to win a place? A bootblack or a newsboy he might be, but how a man among men, much less an artist? Is not his example worthy of thought, of imitation? Is there not hope for the poorest and the unfortunate in it?

" Like as a star  
That maketh not haste,  
That taketh not rest,  
Be each one fulfilling  
His God-given best."

W. J. B.

[Translated for *The Philadelphia Photographer*.]

## PLATINUM PRINTING.

BY LEON VIDAL.

WE state with much satisfaction that several important houses in Paris have adopted the platinum process, notably Messrs. Van Bosch & Pirou. This example will doubtless be followed by many other operators; and, little by little, we shall see the unalterable printing, either of platinum or carbon, take the place of the fugitive pictures made with the silver salts.

The important thing is to begin and to bring the public to prefer what is durable to what passes away. We are now on the right road, and it is only necessary to perfect the process, which certainly still leaves much to be desired. It is with reason that platino-type prints are said to be wanting in warmth, that they have a cold, gray aspect,

\* At the cemetery "Forrest Hill" is a conservatory, where, at a tropical temperature, are growing rare plants; and in it, when outside the hemlocks are snow-laden, are held the last services, "Earth to earth, dust to dust, ashes to ashes," and there the relatives leave their dead.

and that they are somewhat monotonous, especially if their slaty tone is compared with the beautiful albumen prints.

We think that there would be a very simple means of modifying the appearance of platinum prints, by giving more vigor to the blacks and more sharpness to the details.

This means would consist in the use of a coating passed over their surface, so as to give them, not the brilliancy of a varnish, but a more artistic glazing, analogous to that given by a coating of normal collodion. The image appears then with a much more agreeable tone than when it is wet. The grays appear blacker, and the whole has more transparence and depth. To obtain this result, it is best to use the solution of white gum lac in boraxed water. Here is the formula of this aqueous varnish, which does not require the use of any previous coating:

Dissolve in 1 litre (34 fl. ozs.) of boiling water, 50 grammes (1 oz. 5 drs.) of borax, and 12 grammes (3 drs.) of carbonate of soda, and then add 200 grammes (6 ozs. 3 drs.) of white gum lac. Ebullition is kept up until the entire solution of the gum lac and water is added to replace the liquid evaporated; now filter through bone-black. This liquid should be used warm, in a sufficiently warmed room. The print is floated over the surface of the bath, quickly removed, and dried by suspending the sheet by one corner. After mounting, enamel in the usual way, and we then have an image that is much finer, more delicate in the details, and less sunken than by the ordinary processes. We admit the mat and the velvety appearance for prints of large size, but for card and cabinet pictures it is necessary to incline more toward transparence and depth in the details. In practice this process will not fail to receive such modifications as will render the use more practical and especially less costly. It now costs a great deal too much, on account of the considerable quantity of chloride of platinum required by a sheet of paper. The residues, it is true, are very rich, but they must be treated, and we know that what is obtained is far from compensating for the higher cost of platinum paper compared with the cost of sheets of albumenized paper sensitized with chloride of silver.

It would be better to have recourse to an inverse method which would permit the sensitizing of the paper only with ferric-oxalate to which some thickening substance has been added, a gum, etc. The impression once produced by the luminous action, the exposed sheet of paper would be immersed in a warm solution of oxalate of potash and chloride of platinum. The reaction would be produced in the same manner, and the deposit of black platinum would be made on the exposed parts, and in proportion to the action of the light. We have an example of a fact of this kind in operating with a paper sensitized with nitrate of uranium. After exposure, if the paper be immersed in a solution of chloride of platinum, the image appears with all its gradations at all points where the nitrate of uranium has been acted upon by the light. By operating as indicated above the expense would be much less, since the paper would first have been sensitized with an inexpensive salt of iron. As to the platinum, there would only be required the quantity necessary to form the image, a quantity much less than that used in the present sensitive coating in the Willis process. To facilitate investigations in this direction which would lead to a much more extended use of the platinum process, we believe it advisable to describe in a few words the theory of the reaction which produces the precipitate of metallic platinum. The ferric-oxalate is, it is known, transformed by the light into ferrous-oxalate. This last salt in solution, in a warm solution of oxalate of potash, instantly precipitates the chloride of platinum in a metallic state. If in a bottle containing ferrous-oxalate we pour a solution of oxalate of potash, and heat the mixture, it suffices to add a few drops of chloride of platinum to cause the immediate formation of a black precipitate, which is metallic platinum. At the present time platinum paper is prepared by mixing ferrous-oxalate and chloride of platinum, and by coating this paper with this mixture. When dry, if the paper be exposed to the light, there is a transformation of the ferric-oxalate into ferrous-oxalate; and if the exposed sheet be placed in a solution of oxalate of potash, heated to a rather high temperature, there

is a reduction of the chloride of platinum at all points where, owing to the luminous action, any pro-salt is found. This explanation of the principle on which rests the present process, will serve as a guide for those seeking a modification of this process, in view of a much less cost to obtain similar or better results. All their efforts should tend toward the composition of a coating capable of remaining wholly on the surface of the paper, so that the image should be lost as little as possible in the fibres of the paper. It is necessary, in a word, to endeavor to obtain what albumen does, which maintains the entire image, formed by the reduced silver, on the surface of the paper, without any penetration to the interior of the pulp of this vehicle.

Now that we have pointed out the road to be followed, we leave to seekers the care of making patient experiments to bring the platinum process to the degree of perfection which we wish it may obtain.

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[Translated for *The Philadelphia Photographer*.]

### ZINC ETCHING—ASPHALT PROCESS.

(Continued from page 765.)

*Cleansing the Relievo and Last Etching.*—

This is the part of the process which must be done most carefully.

Put the plate in a mixture of turpentine and a solution of etching potash. Use a fine brush to remove all the dye, as well as the varnish. Then use benzine to wash off the last traces of any fatty substance, and rinse thoroughly with water. Wipe with a half-dry sponge and fill up the crevices with slaked lime.

When the surface of the plate has been polished (by using the palm of the hand), the glossy zinc picture can be discerned upon the white chalk surface. In this way, one can notice where the metallic parts still exist, which must be removed.

Wash off the plate with water and cleanse the crevices with the brush; after which, the parts referred to can be removed with the graver. This proof-sheet is, of course, limited to the present relievo; where the

acid has taken away too much, it does not matter.

The points left on the ground should be removed; they appear there because the resin or coloring matter has prevented the action of the acid; keep well in view, and removed before they spread too much.

Finally, lay the plate on the stove, and when it has become warm, apply the fourth color, which is to be very slightly, if at all, diluted with lithographic varnish. The paraffine contained in that is full of acid.

Upon the final etching, the fineness of the drawing greatly depends; if it is not done with the utmost care, then all that has been done previously is spoiled.

It is necessary to make a copy of the plate for the book-printing press from the last etching, and this should be well inspected. The last etching may be compared to the dial of the clock.

The six or seven etchings which have laid the ground deeper, have not worked with mathematical precision. This is noticeable after the color is washed off; each etching is marked by a gradation.

The first of these grades, if we may so call them, are too high; the color-roller would touch them, and thereby the copy would be speckled. The aim of the last etching is to make them disappear. The ground below does not need to be even, it depends upon the depth which can be reached by the elastic roller. The last etching *must* be done with care, for it can spoil everything, especially if the covering color is not sufficiently capable of resistance or has been badly applied.

The large lights left standing should now be cut out, and the plate fastened with small tacks to the wood-block.

The printing of the zinc clichés is, indeed, the printer's affair, but yet the etcher should understand it also, since he has to deliver with the plate a good proof copy. A piece of flannel should be laid upon the block covered with one color and with the printing paper, so as to weaken the shock of the press. At first the zinc cliché does not blacken; the zinc must get accustomed to the color first, as it were. Print upon crayon paper, dry. Ordinary paper is wet with water, but used half-dry.—*Moniteur*.

[Translated for *The Philadelphia Photographer*.]

## ON THE RECOMPOSITION OF WHITE LIGHT, WITH THE AID OF THE COLORS OF THE SPECTRUM.\*

BY M. STRUMBO.

WE know that in the well-known experiments of Newton's disk the recombination of white light is shown by utilizing the persistence of images on the retina; but the colors whose fusion is thus produced are not the colors of the spectrums; they are the colors of the pigments attached to the movable disk, complex colors, arbitrarily chosen, and which it is necessary to assort and apportion by gradual steps if we wish that the rotation of the disk should produce the impression of a surface entirely white, or, more correctly, entirely gray.

In order to obtain the recombination of white light starting from *the actual colors of the spectrum*, and utilizing, as in Newton's experiment, the persistence of images on the retina, I made the experiment in the following manner:

A spectrum is produced which is projected, in the usual way by means of a prism, on a white screen. Care must be taken to mount the prism on an axis parallel with its edges, so as to give it a rapid rotary motion. When the rotary motion is slow, we see the spectrum with its seven colors appear on the screen. When the movement is rapid the colors disappear, and the space swept by the movable spectrum appears like a band of white light. It is well to remark that one of the extremities of the white band always remains colored. The band invariably ends with a slight ray of a pure red. This is owing to the minimum of the deviation. During the rotation of the prism each of the colors of the spectrum passes by the position corresponding to its minimum of deviation; it results from this that the red, which has the least deviation of the colors of the spectrum, is not reached, in this position of minimum deviation, by any of the other colors, and therefore shows itself in all its purity. By causing the prism to turn slowly, it is possible to verify the ac-

\* French Academy of Sciences.

curacy of what has been stated above, and to show to an audience the existence of the minimum of deviation. If the synthesis of white light is merely to be shown, it is better to hide, by means of a little screen, the portions of the screen in which would be produced a spectrum with a minimum of deviation; the white band without a colored edge would alone remain.

### QUERIES, CONUNDRUMS, AND CONCLUSIONS.

C. W. H. You do not get one-half the good and pleasure of your negatives if you do not make transparencies from them. Ten to fifteen seconds' exposure at a distance of twenty inches from the flame would be right. Mr. Carbutt's ferrous oxalate developer is very excellent, as follows:

*Ferrous Oxalate Developer.*—There are some who still have a preference for iron and oxalate for developing negatives. The time of exposure is required to be nearer correct, however, than with pyro development, which allows of greater latitude in exposure.

No. 1.		
Oxalate of potash . . .	8	ounces.
Warm water, free from lime . . .	32	"
Citric acid . . .	60	grains.

No. 2.		
Sulphate of iron . . .	4	ounces.
Water . . .	32	"
Sulphuric acid . . .	8	drops.

Mr. Carbutt recommends using 2 ounces of No. 1, add 1 ounce of No. 2, 1 ounce of water, and 4 drops of the bromide potash solution; let the development continue until the blacks look quite strong, and detail plainly showing in the high lights; wash off developer thoroughly before fixing, use fresh hypo solution; when fully cleared, wash for half hour, then immerse in alum bath five minutes:

Alum . . .	1½	ounces.
Citric acid . . .	¼	ounce.
Water . . .	20	ounces.

Wash for half an hour, then carefully go over surface with soft camel's-hair brush, or pledget of cotton, to remove any particles of

dirt; place in rack to dry. When dry, cover with mat and clean crystal glass cover, and bind with binding strip.

You should get Mr. Carbutt's "yellow" circular, wherein many excellent hints are given, among which, *pro bono publico*, we give the following:

Transparencies for window and door decoration should be made on plates somewhat larger than the negative, so that a suitable margin may surround the image. To do this, cut a mask with rectangular or other opening out of the thin red enamelled paper. For an 8 x 10 transparency from a 6½ x 8½ negative, take a piece of the mask paper 11 x 9 with two sides cut to right angle; make a line with pencil and ruler 1¼ inches from two sides; from the side line measure 5¼ inches, and from the cross line measure 7¼ inches; cut on these lines with a sharp knife through the paper laid on glass or zinc, and remove the blank; make a x mark on left upper corner, to denote register corner, place this mask in a 10 x 12 deep printing frame, let it register close in the left-hand upper corner, lay the negative film side up and under the mask; adjust the negative so as to show in proper position through the opening; over this place a Keystone A transparency plate, 8 x 10, letting it register in the same corner as the mask; lay over a pad of black cotton flannel, close the printing frame, expose to the lamp or gas-light 10 to 15 seconds or more, according to density of negative. Develop as directed for lantern slides, and in every other respect proceed the same.

The tone, both of lantern and large transparencies, can be varied from a warm brown to a velvety black. Increased exposure and weaker developer (adding water) with more bromide gives warm brown tones. Short exposure and stronger (undiluted) developer gives dark tones. The same solutions given for negative intensification can also be used for toning transparencies.

"PHOTOGRAVURE." We have given very many examples of Mr. Ives's autographic process. His particular method is, viz.:

A gelatine film, sensitized with bichromate of potash, is exposed to light under an



ordinary photographic negative. It is then placed in cold water, which swells it into relief, highest where the negative was most opaque.

A cast in plaster is then taken from this wet gelatine relief. The surface of the cast is highest where the negative was most transparent (representing the blacks of the photograph), and lowest where it was most opaque (representing the whites). Variations in height between the two extremes represent the middle shades of the photograph.

The plaster cast, produced in the manner described, is utilized for translating the body-shades of the photograph into lines and dots by a purely mechanical means, as follows:

An elastic stamp of V-shaped lines or dots is inked and pressed against the relief until the flattening of the lines or dots causes them to make an even black impression on the highest parts of the relief. The ink dots are then very minute on the low parts of the relief, increasing in size where it is higher, until they meet to produce the perfect blacks on the highest parts.

Relief printing plates are made from the ink-stipple picture either by the usual methods of photo-engraving, or by transferring directly to zinc and etching into relief by the chemigraphic method.

(See our issue of December 18th, 1886.)

**"LENS-LOCKED."** It is out of our province to "say confidentially which is the best lens to buy." If you search our pages you will see that we give our views frankly of all candidates for patronage in this line. We will not advertise any bad lenses; but you must make your dealer do the business of helping you choose, as he also makes his profit on the sale. As we have often said, lenses are like hammers, and no one kind or size will do everything. Don't expect it.

**"MORE LIGHT."** You will find the subject of light and shade, with numerous illustrations, in *Wilson's Photographics*, Lesson A. We commend the book to you with a full thousand endorsements.

**"GERMAN."** The address of Messrs. Schulz & Suck is Carlsruhe, Germany. We shall present in our March issue a splendid

Mosaic of nine of their attractive pictures exhibited at St. Louis. Later in the year, a single cabinet by Mr. Suck will appear, with cuts of his atelier, he having sent us ten capital negatives, photographs, etc., for the purpose.

**"PADDY."** We are negotiating for an Irish embellishment. The Emerald Isle holds some excellent photographers, and subscribers to this magazine as well, and it shall not be overlooked.

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### PHOTO. FACTS AND FANCIES.

**DO NOT BE DISCOURAGED.**—When Vandyck had finished his famous picture, "The Elevation of the Cross," for the church at Courtray, the monks of the chapter declined to accept it, declaring it to be "a daub." Some competent art critics afterwards convinced them that they were wrong, and the picture was received and paid for. When the chapter, desiring to make amends, proffered Vandyck an order for two or three other paintings, he indignantly declined the commission, averring that they could find numerous "daubers" in Courtray able to do work good enough for them. We all know how hard it is to hear our work criticized by the ignorant, but it need not discourage us.

#### HOW IT IS DONE IN NEW YORK:

NEW YORK, November 22, 1886.

"In order to introduce my work in families where it is not already known, I make this special offer. For the next thirty days from date I will make from any good picture a life-size bust Crayon Portrait Free of Charge.

"If the work proves to be entirely satisfactory, I ask that you buy a suitable frame for it. Call and examine work, and see samples of frames. A handsome gilt or bronze frame for \$10 to \$15, and upwards. Persons at a distance can have work sent C. O. D., with privilege of seeing it before paying.

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"Upon presentation of the Circular, the holder is entitled to one Crayon Portrait Free."

The above is posted to residents in this city, with a "ticket of admission," entitling the bearer to a useless crayon free, and the privilege of purchasing a frame for it for \$10 or \$15. The world moves.

THE foreign journals announce the discovery by a Chinese gentleman of photography in natural colors—the realization of the dream of photographers from Daguerre's day down to our own. The process, it is to be hoped, is simpler than the name of the inventor, Azurizawa Ryochi Nichome Sanjukanboz Kiobashi-Ku. The photograph taken was the Island of Enosbima.

“PREVIOUSNESS” IN PHOTOGRAPHY.—In the *Camera* magazine a very curious phenomenon in connection with photography is recorded by the person who observed it. He took a portrait of a child apparently in full health and with a clear skin. The negative showed the face to be thickly covered with an eruption. Three days afterwards the child was covered with spots due to prickly heat. “The camera had seen and photographed the eruption three days before it was visible to the eye.” Another case of a somewhat similar kind is also recorded, where a child showed spots on his portrait which were invisible on his face a fortnight previous to an attack of smallpox. It is suggested that these cases might point to a new method of medical diagnosis.

CHANGED TO SUIT.—

There is in each life some time or spot,  
Some hour or moment of sigh or laugh,  
That never grows dim and is never forgot,  
Like a Rembrandt light in a photograph.  
Some rare season, however brief,  
That stands forever and aye the same,  
A sweet, bright picture in bas-relief,  
Hanging before us in memory's frame.

“OUR GENIAL CORRESPONDENT, Edward L. Wilson, of the ‘American side,’ has sent us a copy of his invaluable annual, *Photographic Mosaics* for 1887. The *Mosaics* has now completed its twenty-third year, and is so well and favorably known that it seems needless to say anything about it. But good as the past issues have been, the present is better. The whole book is a very creditable specimen of the printer and bookbinder's art, and the general beauty of the whole is enhanced by the special beauty of two Moss-type engravings, which are inserted as advertisements, and a fine photogravure frontis-

piece representing a lovely lake landscape view at ‘Kaaterskill.’ Not only is the ornamental part first-rate, but the useful has been equally catered for. There are forty-three practical articles, treating on every phase and branch of photography. It is impossible to give even an outline of the varied selection of subjects, or to give an idea of the standing of the authors on the list. Those who want a good thing should get the *Mosaics* and see for themselves.”—*The Photographic World*, London.

PHOTOGRAPHIC MOSAICS, by Edward L. Wilson.—This is the first of those photographers' annual visitors, which generally come a little farther on in the season, and remain as valuable books of reference all the year.

In addition to an interesting retrospective review by the editor, the *Mosaics* of this year contains a collection of forty articles by as many contributors, some of whose names are as household words on both sides of the Atlantic, and include representatives of America, Austria, England, France, Germany, Italy and Scotland. The *Mosaics* has come to hand just as we are going to press, and therefore we cannot enter into anything like a detailed criticism, but we cannot help calling attention to an article by Mr. W. J. Mozart, as a specimen of just what is at the present time most required, and which, if it and those like it, were carefully studied, could not fail to vastly improve the pictorial quality of at least three-fourths of the work of the professional photographers of the country.—DR. JOHN NICOL, *Editor of the Photographic Beacon*.

We have published many articles of similar nature to Mr. Mozart's during the year, and are glad to know they are approved by our older brother.

15 ROYAL TERRACE, EDINBURGH, Dec. 25, 1886.

EDWARD L. WILSON.

DEAR SIR: Having been away for some time, and being away still from home, there is no knowing how much your kindness in sending your PHILADELPHIA PHOTOGRAPHER may have set me in your debt; but, pray receive my thanks, best thanks, for them all. The last received, however, before leaving

home, had intended to congratulate you upon, and accordingly do hereby. It was that containing the two varieties of photo. copies of a colored print of the Midnight Sun at the North Cape. It is quite a triumph of color effect—Ives's process; supposing that the two are genuinely what is stated, and quite untouched.

For the one example, taken by photographic film sensitive only, or chiefly to the violet ray, is positively uninteresting, and contains nothing of the sun, or of its approximate effects; while the other example contains both, and so naturally that I had to read your description before being able to assure myself that the photo. was not from nature itself. This should surely be a new departure in photography, both artistic and scientific; and my friend Professor Herschel, who, years ago, wanted a photograph of an orange tree with its fruit distinct from its leaves by something more than shape, is now beginning to photograph spectra "all along the line," instead of, as hitherto, only in the violet region, which the eye does not understand.

That fact I have enlarged upon in spectroscopic essays, and would now add to it, in the way of mentioning that most photographic portraits, when examined with a magnifying glass, give me the impression of being demonic marks of humanity, not humanity itself, and for the reason that they are taken by the violet rays, which the eye does not appreciate. But I recently fell in with a carte of a fine old Yorkshire dame, and am promised, by and by, a copy, which had not that character at all, and was, I believe, taken by the visual rays, viz., red and yellow.

Meanwhile, I send you in a roll, a blue picture of polar bears, in case you could interest Mr. Ives to prove his process again by showing whether his method will give that blue and white picture with much more intensity than ordinary violet-ray photography can do.

And with that engraving I send another, representing the Fathers of the Pilgrim Fathers playing a certain historical game at skittles, before America had begun to be talked about at all.

Yours very truly,

C. PIAZZI SMYTH.

THE readers of our magazine need hardly be cautioned not to let what follows mislead them.

"Having had many years experience in Photography, both in this country and Europe, am now about to retire from the business on account of my eyesight failing.

"I now offer to the Fraternity three valuable Formulas for the small sum of \$1.00, or 50 cents for either one of the three.

"1st is a *Light* for the dark room which is not in any way hurtful to the eyes as the ruby light is I use a spirit lamp; hence no chimney to break, nor is it a red light, and no smell.

"2d is a *Formula* for developing dry plates with pyro that will keep any length of time.

"3d is a *Clearing and Intensifier* which clears off all traces of hypo, and intensifies the negative.

"If you are doing any kind of business you cannot afford to do without these.

"P. S.—The above sent on receipt of price pre-paid."

The above has been scattered in circular form. The author's name we omit. He can hardly have anything that is not given in the magazine. Hold on to your money until you can get more for it.

## METHOD OF ERADICATING BLISTERS.

BY D. H. CROSS.

HAVING a desire to return a little for the much received through the columns of the PHILADELPHIA PHOTOGRAPHER, I submit the following, and ask all who are troubled with blisters to try it:

Alum . . . . .	1 ounce.
Water . . . . .	40 ounces.

Dissolve and soak the prints in it for eight or ten minutes after toning and before fixing. It may be used repeatedly.

The tone and gloss of the print are also improved, especially with double gloss paper. Should the paper show a tendency to crack after mounting and drying, use a weaker solution, or remove the prints sooner from it. I would ask a trial of this, and the results reported.

## OUR PICTURE.

A FEW months ago an illustration called "The Vandyck System of Lighting," appeared in the *Photographisches Mittheilungen*, of Berlin, the magazine so ably edited for many years by our good old friend and correspondent, Dr. Vogel. We coveted it as a useful study for our readers, and applied to Messrs. Loescher & Petsch, who made the negative, for a positive from it, in order to carry out our desires. We were answered by a prompt and substantial response in the

effort which gave us more æsthetic enjoyment than does this picture. We wish that all our readers who have feeling could enjoy it as fully as we do, and we feel our weakness when we attempt to explain its good parts. But we mean to devote a good part of our magazine during 1887 to the dissemination of art instruction as applied to the work and pleasure of our patrons, and we propose to begin right now.

Our German confrères have called this excellent picture an "example of the Vandyck style," or "system." We have not



Rev. Wm. Shelton, D.D.—By L. G. Sellstedt, N. A.

shape of two excellent transparencies. From these Mr. F. Gutekunst, Ninth and Arch Streets, Philadelphia, has produced the admirable phototype prints of "The Old Fiddler," which embellish our current issue.

Since the time we began to study art as applied to photography, we have seen no

found that Vandyck had any particular "style" all his own, and yet there is an individuality about his productions which cannot be mistaken. You will be able to assent to this presently.

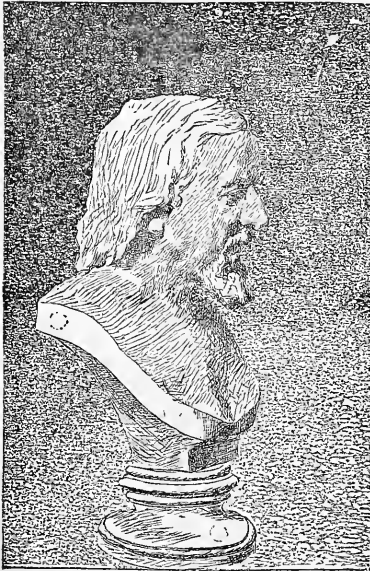
Antony Vandyck was one of the Dutch school of painters, and was a diligent pupil

of Rubens. He died at the early age of forty-one. His life was full of vicissitudes, and at one time it seemed as if the hard contrarieties which continually confronted him, would discourage him utterly, and overturn his mind. But he was a sincere lover of his art, and studied earnestly, not only with his Dutch master, but in Italy, at the collections of the older masters. A long time he was in England, and became the Court Painter during the reign of Charles I., of whom he painted some majestic pictures.

He even excelled Rubens in correctness of design, in delicacy, and in the expression of

one ever succeeded better in expressing, both in position and look, the ease proper to individuals of high station, nor also the charming unconsciousness of bloom in childhood. There is an element of aristocracy in the look of all he did. Simplicity and nobility combined. In lighting, while he followed the Italian masters, whose works he studied so diligently, he also adopted a method which was unmistakably his own.

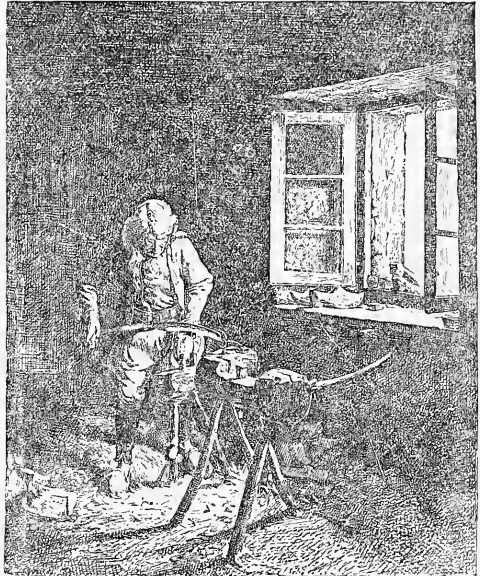
In Wilson's *Photographics*, page 61, section 78, we read: "It is also a fact, that in photographic portraiture it is not considered desirable to illuminate the sitter with direct



Thos. LeClear. By W. R. Donovan.

his heads. Truth, purity of coloring, and a tender melting of half-tones, with bold conception and fecundity of invention, also characterized all he painted.

In portraiture, Vandyck is accorded the most honorable place after Titian. Heads, hands, and accessories, were given the utmost care. His attitudes were easy and natural, and captivated by an air of unaffected simplicity. (Now look at the "Old Fiddler.") His heads are also full of life and expression, without any of the coldness and insipidity which are so frequently found in the productions of the portrait painter. No



The Sabotmaker. By E. M. Ward.

sunlight, but, if we wish to produce the broad, open effect of daylight, with well defined and equally illuminated line, we must use a broad, open, well diffused light, so arranging the drapery of figure and accessories that we obtain enough of sharp and well-defined shadows to give the necessary pith and precision to the whole."

As an example of this system we insert an engraving of the portrait of Rev. William Shelton, D.D., by L. G. Sellstedt, N. A., of Buffalo, N. Y., whose admirable paper read at the N. P. A. Convention, 1873, will never be forgotten by many who heard it.

Another example we find in the bust of Thomas LeClear, N. A., by W. R. Donovan.

Returning to *Photographics*, Section 79, we read: "Careful attention to this point will give a much greater effect of brilliancy and light than any amount of over-intensifying. Again, if we wish to produce those effects which might be styled *a la Rembrandt*, we must use a more direct, concentrated light, and so arranging the figure or sitter that the light falls upon and fully illumines the portion of the figure we wish to give the greatest prominence, allowing the other parts, both of the form and outline, to be partially lost in shade. Do not misunderstand, blackness is not meant. By this means of lighting some very grand effects are produced. Many have supposed, however, that this style is conventional and unreal. Such is not the case, for the same effect may be seen in any apartment which is but partially illuminated, whether by artificial means, or by the opening which the daylight enters being small in proportion to the size of the apartment. Both ways are correct in principle and equally good if suited to the subject; the former will be found most serviceable for general use, and may be considered as nature's sunshine, while the latter may be appreciated as we do nature in her grander moods, as in the coming storm or the play of the forked lighting."

We are all familiar with the Rembrandt method, for it is in common practice among photographers almost daily. The other system, of lighting "by the opening through which the daylight enters being small in proportion to the size of the apartment," may be called the "Vandyck system." "The Old Fiddler" is an ex-

ample of such lighting. The "Sabotmaker" is another fair example of this method, as study and comparison will demonstrate.

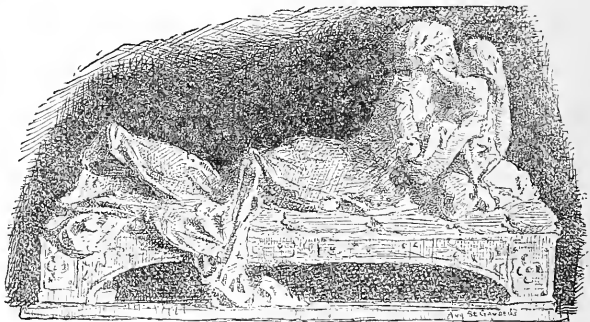
In many of Vandyck's paintings we see the background broken at one side by a window, with a view of the landscape beyond showing, or suggested by "The Sabotmaker." We are also thus directed to the source of light. See also the domestic scene called "The Testy Old Squire's Complaint," by George H. Story.

And now, art students, having thus tried to interest you once more in the matter of



"The Testy Old Squire's Complaint." By George H. Story.

light and shade—*chiaro oscuro*—may we not hope that you will once more get down your *Photographics*, dust it off, and read from Section 81, page 62, to the end of page 76? If



you do, you will better understand what examples and further points on this vital subject we shall place before you during the coming months, and will produce results which will better please your patrons, an

bring you better prices. And try each year to produce four pictures, each one holding as much excellence as does the "Old Fiddler" of Messrs. Loescher & Petsch.

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### OPEN CORNER.

DEAR SIR: Will you permit the "Open Corner" to say a word or two in behalf of some of the craft, of whom I am one, who take a serious and sincere view of our business? I was much touched by the article entitled "Your Dealer," on page 648 of your issue of November 6th. But I have since been more touched by the "queer" actions of more than one "Dealer." Let me state the case. Two weeks ago the representative of a house called upon me to sell me some stock. I had never bought of him before, but since he offered me a low price on albumen paper, and a discount on dry plates, I gave him an order for what I then needed, and enough to last me for a month or two, believing I had a bargain. The next day a traveller for another house came along and solicited an order. I told him I had just purchased, and wanted nothing. Then he began to offer "prices that would make the other man sick." Instead, he made *me* "sick," for had I reserved my order for him I could have saved two dollars on a ream of paper, and ten per cent. on plates. Now, do not dealers understand that such "cutting" as this destroys confidence all around? We do not know where it is, but we suspect there is trickery somewhere, and the fear of it prompts us to send away from it for our goods. Are any more goods sold by such practices? G. W. W.

DEAR SIR: Business here has been very dull—never so dull at this time of the year I never saw the people so perfectly indifferent to the securing of photographs of themselves or family as they seem at present. It seems that the fact of a lot of our boys with their \$10 outfits, running about taking this, that, and the other thing, has had a tendency to educate the people to look upon photography as something of very little account. And then again, to help on this, the *ninety-nine cents* per dozen cabinets taken in the city, about perfects the art of photography

in the minds of the people as something to be classed with the five cent chromos.

To one who takes the pains in doing their work that I do, this is rather galling; however, I seem to love the art as much as ever, and work at it with as much pleasure as I ever did, but if I had not laid by in the better days for such times as these, things would look rather blue about our house.

A. K.

DEAR SIR: I give you some hints as to how I work up business:

I have been photographing since the Fall of 1874, except about three years. I have been very successful in my business in dealing with the public. Having read a great many of your magazines, I concluded to subscribe last spring, and seeing some of your pictures by the Photogravure Company, I conceived the idea of getting up a picture album of Custer County (one of the largest counties in Nebraska), taking pictures of the farmers' residences; giving a biographical sketch of each farmer; also telling what section, town, and range, so that I can issue a complete guide for finding farmers throughout the county. I interview one of the oldest farmers, and one most competent to write all the interesting incidents connected with the early settling of his particular district, and also gain what information I can myself. This is a new county, and the dwellings are built exclusively of sod, which is a curiosity to the Eastern people, who like to know how people can live in such places.

I commenced operations on the fourteenth of last June, and was greatly surprised at my success. My way of proceeding was this: I would drive up to a farmer's residence and tell him that I was collecting materials for a book of Custer County; taking pictures of farmers' residences, writing historical and biographical sketches, I would make a photograph of him and his family. By taking three 8 x 10, it entitled him to a picture of his place, and a biographical sketch *free* in every book published in the county. What has been the result? I have established a business that is going to take me three years to finish. I do not miss one man out of twenty, and three-fourths of them take from six to twelve 8 x 10 of their

place, and those that cannot afford to do that take three, enough to be represented in the album. I made my last delivery in December; distributing about four hundred 8 x 10; and travelling about one hundred miles to make the round trip. I can show the finest lot of negatives of sod houses of any live photographer in Nebraska. I have been here four years; holding a tree claim, which I have turned into a preëmption.

Yours truly, S. D. BUTCHER.

DEAR SIR: Since the use of dry plates in photographic studios has, in many cases, become exclusive of other processes in which excitants, such as *explosives*, are used, would it not be of value to a great many if there might be a line drawn between the two, making a distinction between a photograph gallery using explosives, and one that does not?

What I mean is: we, who use no gun-cotton, alcohol, ether, etc., are at present compelled to pay an insurance of five per cent, and, unless we own a structure, all other tenants of the same building also, are raised to five per cent. Now, I, for instance, wish to occupy a story over a dry goods store. They, I believe, pay one and a half per cent. insurance, and on such a stock as they carry five per cent. would make a grand difference.

I use the dry now exclusively, and don't much like the companies to tax me for what are not really taxable. If you, Mr. Wilson, and others, can cause a distinction in the item of insurance, I am sure you will be doing a valuable service to many others as well as to

Yours, fraternally,  
C. L. WINTER.

OREGON.

Mr. Winter touches a chord which our P. A. of A. should send vibrating among the insurance men, at the Chicago Convention.

### VIEWS FROM MY OFFICE WINDOW.

I AM asked to resume these "Views" by readers who declare them useful in helping to lessons in the "witchery of observation," as one terms it. I gladly follow wherever I can serve well. And in what follows under

this head, I shall only describe exactly what I find myself, from time to time, shaping for my camera.

When I last conducted you to the window there was a street vendor near the Lafayette Statue, who was selling pears. He usually posted himself there at about 4 P.M., and then I could hear him until I rested my pen for the evening meal, crying out "rich ripe pears, five cents a ko-ert!" with the emphasis on the ko. I patronized him once, and once only. He had a peculiar formation of his fingers, which enabled him to so grasp a large pear and one or two little ones, that when he dropped them into the measure they would become wedged half way to the bottom. Then, as the fruit was tossed in a bag, another small pear was placed on top with great emphasis as "*lagniap*;" but, after all, the buyer did not receive more than half a ko-art. I saw him practice on me, and caught his eye at the moment. We both saw that we should never have any further transactions with each other.

Notwithstanding his rascality, the picturesque fruiterer has evidently prospered. During the holidays he came back—this time with white grapes. He had a better horse and a longer wagon. Six Malaga casks were piled pyramidally in the wagon, and about these were the green clusters hung quite artistically. Any individual bunch made a fine study in *chiaro oscuro*. Over-topping his pyramid, and spoiling its fine lines was a section of a barrel head, and on it a placard, which read

<p>FINE MALAGA GRAPES, 8 Cts. A <math>\frac{1}{2}</math> POUND.</p>
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Do you "catch on" to his trick? At a distance—say from my window—it looks as if the grapes were eight cents a pound! And, to my ears, he cried "fine Malaga grapes, eight cents a *pow-und*." But he got the "half" in, in a quiet sort of way, and deceived and cheated half his patrons. He is a picturesque scoundrel, and ought to "go West," for he is yet a "young man," and there is hope for him.



Just now I heard a great sound of voices. Looking out, I saw about sixty boys following an express wagon. It is a daily sight. About 4 P.M. the *Evening Telegram* sends up its supply for the newsboys in this quarter of the city, and they greet the distributor with a shout fearful enough to destroy the walls of Jericho, or send the invader flying across Jordan. When the wagon halts, the pink-tinted newspapers begin to ooze out from its rear like straw from a threshing machine. The clamoring boys catch the supply as it comes, and then, running in every direction, scatter the news like chaff before the wind. I leave the moralizing of this to you. Sometime be on hand there with your camera, and you will be sure to secure some interesting bits.

Promptly, two hours after sunset, "the Magic Lantern Advertising Man," over on the Fourth Avenue side, begins his projections. They are sharper and better illuminated than they were in November, previous to the election, he seemed to get some of the candidates names out of focus then. It was a real pleasure to look at his holiday advertisements. That excitement being over now, he has returned to his "regular business" of patent medicines and cough mixtures. Will photography ever grow so great as to make it pay some one to advertise thus: "Use only Careastrameagsee's Dry Plates?"

A pointer from his advertisement may serve some of our enterprising readers who have opportunity to "make a dollar" in this transparent way:

"We desire to call your attention to our method of advertising by means of the electric stereopticon, possessing the unprecedented brilliancy of four million candle power. The first and only practical application of the electric light to this use. The intensity of our illumination can be understood when it is stated to be as great as the sun, over the four hundred square feet of canvas on which it is thrown, and by which means are projected the enlarged designs, elegantly colored, surrounded by the reading matter of the advertisements.

"That we possess the power herewith of attracting the attention of the public, is

proven by the wide-spread influence of our Bulletins on Public Topics which are interspersed among the advertisements, and our readiness to assist public sentiment commend us to notice.

"Our Bulletins, with their ever-changing and life-like character, are especially attractive to ladies. Occasionally presenting some item of intelligence, are, after a determined perseverance recognized as one of the legitimate means of attracting public attention, and of impressing observers with a lasting memory of that which may be of interest to them.

"Convincing evidence of valuable results to our advertisers will be gladly furnished on application; and directly referring to our patrons, there can be no mistake of the desirability, economy of the wide-spread publicity we furnish. Their continued patronage is additional evidence.

"And the results are not merely local, since people from all parts of the world are guests of the numerous hotels about us."

The idea is a Parisian one, I believe.

Some real photographic "views" will come next."

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### QUESTIONS TO THE CRAFT.

IN order to diffuse information of value to many of our readers who are continually inquiring—those who have not the advantages of conventions, or even contact with other photographers, we propose the questions which follow to our more privileged readers, and ask a generous response to them, for publication, for the sake of the real good which such action will accomplish:

1. Are you making large portraits direct in the camera, *i. e.*, using a larger lens than 14 x 17, with large dry plates? If so, what is your method of lighting and manipulation, and your experience as to the quality of your results compared with enlargements from small negatives?
2. Do you obtain as satisfactory results, in portraiture, with very rapid plates, as you do with slower ones?
3. What is your most successful method of development of rapidly exposed plates?

4. Have you found an increase of business and profit with the increased facilities for making large work more expeditiously, adopted by you?

5. What has been your experience, both in practical results and in the acceptance by the public, of bromide enlargements?

6. What with platinotype prints?

7. Do they increase the revenue from your stock of negatives?

8. Please detail some of your experiences in making pictures of children.

9. In printing dry-plate negatives wherein does your treatment of them vary from your practice with wet plates?

10. What variations do you make in your manipulations in cold weather from your practice in the mild seasons?

11. What are the prospects for the coming year?

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### THOUGHTS FROM THE NEW BOOKS.

THE most favorable focal length of a lens for perspective correctness may be from twelve to fifteen inches, but lenses of even much longer focus will give a good perspective effect, because the pictures made with them are mostly of large size, and are, therefore, inspected from a correspondingly greater distance.—ERNST GUNDLACH.

It is plain that if we were enlarging, say, to twice the diameter, the distances of image and object would be reversed; the negative and picture would be one and a half times, the sensitive plate three times, the focal distance away from the lens.—G. M. SEARLE.

Never take no for a negative.—LUKE SHARP.

Fog on your plate is more often due to a bad dark-room than to any other cause.—CHARLES WAGER HULL.

In making window transparencies I use the slowest obtainable emulsion, and select for my negatives for this purpose those possessing the greatest technical merit.—W. I. LINCOLN ADAMS.

Yet for many a photographer might old Polonius speak with satiric truth, in his indignant words to the Queen: "Madam, I

swear I use no art at all."—FRED. HART WILSON.

I may add that I have found it very convenient, in taking small charts upon bromide paper, to use a large plate-holder, for it is only necessary, when the position is roughly adjusted, to notice on what part of the groundglass the view appears, and to place the paper in the corresponding part of the plate-holder.—HENRY M. PARKHURST.

For every evil under the sun there is a remedy, or there is none. If there is one, try and find it; if there is not, never mind it.—C. E. VON SOHREN, U. S. A.

From the habit of noticing carefully the intensity of the illumination of the subject on the groundglass of the camera, so as to judge correctly of the exposure, always keep your developing solution in motion on the plate. Develop longer than you think necessary; a slow printing negative is preferable to a weak one —E. M. ESTABROOKE.

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### AN ART CHAT WITH MY CO-WORKERS.

BY W. J. MOZART.

THE first number of the PHILADELPHIA PHOTOGRAPHER for 1887, with the lovely studies of Miss Behrens as "Zitka," was a glad surprise. It is almost needless to say that the *P. P.* is still first and foremost of all the photographic literature, both foreign and domestic. Do the members of the craft realize how much they owe to the editor for the superb examples of artistic photography he is constantly placing before them? Compositions at once so simple, and yet in such exquisite taste. I have bought the whole series of Miss Behrens. They are most excellent examples of what may be done without accessories in some instances, and with simply a chair and table in others, to produce effects of the highest artistic merit. Of those without accessories, the two three-quarter lengths, with the hands gloved and clasped upon the breast, and with the face upturned in supplication, are full of fine feeling and delicate lighting. The one with the hands clasped below the waist, and with down-cast eyes, is so full of subtle lines that

it would be almost impossible to define them all. When you study them do not let the graceful lines of the arms, or the effective manner in which the hair is used to give form, escape your notice. Again, the full length figure of a similar pose, contains the same technical excellencies. The two full length figures, standing with one hand resting upon the table, the other clasped to the breast, and face upturned, are at once simple in composition in lighting, very effective, and highly artistic. The entire mass is broad in handling, and every detail is subordinated to the face. The Madonna-like expression is most beautiful. The arrangement of the hands in this picture is invaluable as a study, giving as it has, a complete finish to the feeling of inspiration. While it is true that in the ordinary run of business one seldom has a call for ideal poses of this nature, still these fine examples are most suggestive and useful, and should not be overlooked. They hold many little points which can be used in every-day work.

There is one more subject among these pictures which is applicable to common studio work. I refer to the three-quarter length in which the hands are clasped below the waist, the face slightly raised, and looking to one side. It is a study in lighting that cannot be surpassed. For a petite figure, with an emotional face, the pose can be used to give most excellent effects. The best pictures of Miss Behrens are all masterpieces beyond criticism. In sharp contrast to Mr. Anderson's splendid proofs of photographic art, let us notice the picture of Mrs. James Brown Potter in the *Photographic Times Annual and Almanac*. Here is a picture entirely without force or expression. The portrait (at least supposed to be, and so labeled) is of a woman of exquisite figure and face, posed most awkwardly, and withal lacking a single element of artistic composition. The face is so badly lighted that the beautiful and intellectual features are entirely lost, and are made to appear insignificant, hard, and soulless. The right arm neither conveys the idea of support or rest, nor is there any apparent reason why it should be placed in connection with the drapery in such a stiff, clumsy line, with the forefinger and thumb displayed in so promi-

nent and improbable a position. Again, the great mass of drapery on the left is so strong in color, and so full of detail, that the eye is drawn more strongly to it than to the figure. I cannot find words strong enough, to express my dislike for this kind of so-called "photographic art." A photographer of to-day is inexcusable if he fails always to LOOK WELL TO THE HANDS. If we must make negatives of our sitters, out of the ordinary run of portraits, let us try to express in the pose, and with proper accessories, the sentiment desired. *Do not* load the picture up with draperies, elaborate backgrounds, etc., for they invariably detract from the artistic merit of the composition. A simple comparison of the different subjects will convey more clearly what I have tried to express, than it is possible for me to describe.

And now, fellow workers, with a word more, I will close this rather tedious letter. We have had in the various magazines lately, a great deal of *trash* written on the subject of the claims of "Photography as a Fine Art." Ten years ago a man who drew pictures on wood for engravers, was not an artist; he was simply a draughtsman. To-day, many of those same men, among whom are Abbey, W. H. Gibson, C. S. Reinhart, Charles Graham, Tom Moran, and numerous others, are recognized as artists of great ability. Their compositions are combinations of light and shade in most simple and pleasing forms. There is hope for the photographer. Study well the methods used by these men in their various pictures. They are all close students of nature, and when you can produce effects similar to theirs (and you can do it if you try) *you can call yourselves artists*. The men who are worthy of that title in the profession can almost be counted upon the fingers; but the man who can look at these pictures of Miss Behrens and then say that photography is not a fine art, WHEN PROPERLY HANDLED, is an ass (spelled with a small a).

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### MR. CHAMPNEY'S VIEWS ON THE CHOICE OF SUBJECT.

AT a recent meeting of the Society of Amateur Photographers of New York, a

very interesting paper on "Composition in Photographic Pictures," was read by Mr. J. Wells Champney. Mr. Champney, long known as one of New York's ablest artists, is also becoming appreciated by photographers as an amateur who draws most valuable and practical hints for them from his artistic experience, and who is, in a quiet way, helping greatly to bring art principles into photography. His paper was really upon one point—the part of any given scene upon a plate to be selected as the picture. "If the part of the subject that is really interesting should be no larger than a dime," he says, "all the rest of the plate had best be covered with opaque paper, that we may better enjoy it." He then proceeded to illustrate his point by throwing a series of landscape slides on the screen, and with specially formed mats cutting out the uninteresting, or distracting parts of the plate during projection. The examples given below will explain.

In the whole plate the big common-place house, set in one corner, and the large space of highly lighted foreground, certainly do not help the picture. In the second, by thoughtful exclusion we have far more of a picture, with better distance and disposition of light and dark. Although we lose a little balance, the improvement is manifest.

And this has always been one of the troubles of the photograph. It gives too much. If our landscape-loving readers will look over their old prints, we venture to say they will find that many, the majority, perhaps, of them, would make better pictures with half cut out. Some photographs produce almost the effect of half-a-dozen pictures crowded into one frame. Now, a picture should be round and solid, in its effect, as is a rifle-ball. This is not saying there may not be a thousand things in it, but they should all focus and centre into one. This is simply the old familiar gospel of unity. Give the picture a point of interest, and only one point; and let everything lead to that—everything be subordinate to it. Do not make us look several ways at once. Choose your point to look at, the thing that makes you wish to take the picture, and sacrifice everything to that.

We regret we cannot satisfactorily illus-

trate the views given by Mr. Champney, but that is impossible. We think the desire among photographers for uniformity of size and shape, often leads them when trimming their prints for mounting, to transgress the laws of art and taste as indicated by Mr. Champney.

Mr. Champney also made a very excellent suggestion that the effect of lantern slides might often be improved by cutting the mat square at the two lower corners, and rounded at the two upper, instead of rounded at all as is usual.

### THE WORLD'S PHOTOGRAPHY FOCUSSED.

THE Photographic Exhibition at Glasgow was a pronounced success.

THE collection of paintings of the late A. T. Stewart, of this city, is to be sold presently. An elaborately illustrated catalogue will be published by the American Art Association, who also conduct the sale. The catalogue will be embellished by autographs by William Kurtz, and photogravures by the Photogravure Co. The paintings will be photographed by Mr. Kurtz's orthochromatic (Vogel, azaline) method. The catalogue will be an elaborate affair.

"STEIN'S New Detective Camera," is the name given to Gray's Vest Camera in Germany. Sic!

SOME English photographers complain that the low down provincials exhibit their work as "personally made specimens." Horrible!

But it is nothing new. It has been done here for twenty years.

SOME of the photographers abroad practice the display of a price-list in their street show-cases in order to induce trade.

"BUSINESS principles" and business push seem as necessary in photography now as in some other directions. But there are ways delicate and ways indelicate.

KITCHEN SALT AS AN ACCELERATOR OF DEVELOPMENT.—M. de Villecholle, in making use of a solution of kitchen salt with

the view of strengthening the gelatine film of sensitized plates, remarked that the product acted in a very marked manner on the development; in proof of which he shows some plates in which a portion had been immersed in the solution of salt before development. In this part, after development, the intensity of the negative was much greater. He attempted to prolong the development of the weaker portion, but he could not obtain the intensity of the other part.

Mr. Andry thinks that this process is better than the hyposulphite of soda bath in weak solution. The plates washed, after immersion in the solution of salt, gave the same results but slightly weaker. It would be well to inquire the cause of this action and to see if, with pure chloride of sodium, the same effects would be obtained. In short, the question is still new, it is interesting and deserves a more thorough investigation.—  
M. DE VILLECHOLE.

PHOTOGRAPHY AT LONG DISTANCES.—I find in the *Moniteur de la Photographie* of December 1st, a remarkable article on photography at long distance. This article, having been reproduced in the English journals, gave rise to a letter from Mr. B. J. Sayce, in which he makes known that an experiment of this kind had been made in 1854, at the time of the Crimean war, by Mr. George Thomas, in the environs of Liverpool. The author obtained, by means of a terrestrial telescope, the negative of a fort situated one mile from his camera and on the other side of the river. The print from this negative was exhibited recently at the Photographic Exhibition at Glasgow. The telescope was five feet long and the objective had a diameter of three and one-fourth inches, reduced to one inch for photographic use. This telescope was attached to one side of a box and on the other side was the sensitive plate. In this manner the object is represented as it is seen in the telescope. This is probably the first experiment made in this direction.—DR. PHIPSON.

DESTRUCTION OF PHOTOGRAPHS ON DAMP WALLS.—Mr. T. G. Whaite complains in the *Photographic News*, that a number of prints which formed part of his collection

at the last Edinburgh exhibition are more or less injured by the dampness of the walls against which they were hung. The prints of other photographers, also placed on these walls, show the same effects; the image fades and the paper is covered with mould. Having obtained the permission to change these prints, Mr. Whaite replaced them by others; but to these last he took care to apply sheets of *Willesden paper* as a preventive of dampness, and he prefers it to paraffine paper.

CELESTIAL CHARTS.—At the last meeting of the Astronomical Society Mr. J. Roberts presented a photographic chart of the heavens, that is to say of that part which had already been photographed at Paris by the brothers Henry, with a refraction telescope of thirteen inches. Mr. Roberts made use of a reflection telescope of twenty inches. In the photographs of this last gentleman we can count, on an average, 91 stars for each square inch of surface, whilst on those of the Messrs. Henry we only count, on an average, 55 stars, and the exposures of Mr. Roberts were much shorter; obtaining in thirty minutes as many stars on his plate as do the Messrs. Henry in sixty minutes.

On this occasion Mr. Common, one of the members of the society, who has given the most time to astronomical photography, explained that the reflection telescope had this advantage, that it brings into the same focus all the parts of the spectrum, which is of great importance now that bromide plates are used, as they are more sensitive to a much greater portion of the spectrum than were the old collodion plates.

H. SILVESTER LAROCHE: HIS INFLUENCE ON MODERN PHOTOGRAPHY.—The death is announced, at Birmingham, of M. Silvester Laroche, one of our oldest and best known photographers. He died at the age of 77 years. The photographic world owes him much, as without him it is very probable that modern photography would not yet have been born. By dint of energy, perseverance, and money, M. Laroche rendered void the patents of Fox-Talbot, and thus gave to the public the right to practice pho-

tography. The famous trial which took place on this occasion cost M. Laroche more than *ten thousand* dollars, and the pleadings lasted three entire days. Talbot claimed five hundred dollars yearly from every one who desired to practice photography. In 1845, Laroche practised according to the method of Daguerre; then with Scott Archer he made experiments with the iodized collodion process which he improved and adopted. Then came the famous suit with Talbot which was won by Laroche, December 20, 1854, a decision which was received by long and vigorous acclamations; and from this time the practice of photography was free. Among the photographic works of Silvester Laroche we may mention several portraits, life size, of Her Majesty Queen Victoria, of Charles Keene, the celebrated author, the reproduction of the interior of Hampton Court Palace, etc. We have here a page of photographic history which certainly is not devoid of interest.

#### CRYSTALLIZED CARBONATE OF SILVER.

—Mr. G. S. Johnson has made a study of carbonate of silver. The hydrated oxide of silver suspended in water attracts the car-

bonic acid and forms, at the end of two months, a deposit of yellowish, prismatic, crystalline scales of carbonate of silver. The water saturated with carbonic acid at 59° F., dissolves (one quart dissolves two ounces five drachms) a small quantity of amorphous carbonate of silver such as is obtained by precipitating a salt of silver with the carbonate of soda, and at the end of twelve hours this solution exposed to the air deposits yellow and crystalline carbonate of silver.

A NEW START—THE CHICAGO LANTERN SLIDE CLUB.—On Thursday evening, December 30th, the new organization was completed by the election of the following officers: President, E. D. Fisk; Treasurer, Charles H. Gould; Secretary, John Nicol, Ph.D.; and a membership of twenty as a nucleus for a large society. They will enter for membership as a section of the Lantern Slide Exchange. The Club will have the support of the best amateurs of Chicago and vicinity, and expect at once to have fine rooms, with one of the best lanterns for exhibition.

This is a capital enterprise, and is bound to be imitated in other cities.

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## Editor's Table.

OUR readers will be pleased to learn that the well known artist, Mr. ENOCH ROOT, of Chicago, has kindly consented to write a series of art papers for the journal, which will appear during the coming year. Mr. Root says: "One thing I would say of your journal. It seems to me to be as nearly a perfect representative and exponent of the interests to which it is devoted as could possibly be, and to be indispensable to every one interested in photography."

MR. GEORGE WOLF, formerly of WOLF & CHEYNEY, Philadelphia, has opened a new store and agency for the BLAIR CAMERA Co. at 819 Arch St., Philadelphia. This is another of several new depots lately opened by the BLAIR Co., which is branching out well, and now has its excellent goods where they may be inspected in a number of our larger cities.

WE have received a special copy of the *Times Annual* from WILSON, HOOD & Co., Philadelphia. It was one of an edition sent out by that firm as Christmas presents to their friends. The back cover bears the firm's card in a neat design, which was made by Mr. PERRY S. MARCELLUS, the inventor of the Marcellus Shutter.

The same firm has also taken an agency for the sale of the Argentic dry plates, and sends us circulars with lists and instructions.

PICTURES RECEIVED.—FROM ZIMMERMAN BROS., St. Paul, Minn., comes a fine print of the great St. Paul ice palace of 1887, said to be the finest ever constructed. It is certainly a very imposing structure. From D. E. WINDMAYER, Philadelphia, comes a very soft and pleasing picture—a river and mill, which, by the disposition of its lights and the dark reflections in quiet water

has a peculiarly pleasant effect. Mr. A. A. BALDWIN, Torrington, Conn., sends us about twenty-six one-quarter size pictures of his California tour, obtained at the various halting places on the way. Most excellent.

MESSRS. ALLEN BROS., Detroit, Mich., send us a circular of their prize offers. They offer a 4A or 6B Suter lens worth \$78 as a prize for the person making the nearest guess to the aggregate of the numbers engraved on Suter lenses sold by them during the years 1884-86. They also offer a 7B Suter lens, worth \$120, to the customer whose orders for the year 1887 reach the highest amount.

THE M. A. SEED DRY PLATE Co., St. Louis, Mo., write us that another new factory, in addition to the one they already have, is building, and will be ready in a few weeks; and both will be run to their fullest extent, to fill promptly all the Company's orders.

A. B. PAINE & Co., Fort Scott, Kansas, send us their fine 112-page catalogue of photographers' and artists' supplies. They seek professional trade entirely, and have splendid facilities to secure and satisfy it. Their catalogue offers a grand collection of good things—everything possible in the way of photographic apparatus and supplies, studio and operating-room requisites. It will surely be studied carefully by the photographers of their section, and we feel sure they could not deal with a house more enterprising and able to meet every photo. want.

WE have received the first number of the *Proceedings of the Camera Club* of London, the Club having resolved hereafter to print its own papers and proceedings. Vol. I. No. 1, is a very creditable effort, and besides being very valuable to members, contains some interesting papers. It is issued at 21 Bedford St., Strand, London W. C., England.

THE EASTMAN DRY PLATE & FILM Co. issue a 30-page pamphlet of instructions in the uses and manipulations of their Permanent Bromide Paper, which should be in the hands of every one who uses or thinks of using the paper. It will tell them just what they want to know.

THE firm of BLAIR & PRINCE, Cincinnati, O., has been dissolved by mutual consent. The business will be continued at the same address by Mr. L. M. PRINCE as L. M. PRINCE & Bro.

MR. E. N. BLAKE, North Adams, Mass., sends us his little pamphlet of directions for using his excellent gelatino-bromide dry plates. Mr. BLAKE uses the metric system, and says, "It is legal, simple, convenient, and scientific."

MESSRS. SMITH & PATTISON, Chicago, Ill., are another firm who come out boldly and take a fair stand for professional photographers. They say in their circular that they depend solely on these for their trade. They also send us circulars of the Suter Lenses and the Baldwin Bur-nisher.

THERE was a mistake made in regard to the brand of plates used by Mr. FRANZ WERNER, of Munich, from whose negatives were made the prints of "Bavarian Beauties" in our issue of November 6th. The plates used were OBERNETTER's, excepting the picture of a girl in a Renaissance costume, which was on one of MONCKHOVEN's plates. The reproduced negatives from which we printed were on Eagle plates.

FROM the MOSS ENGRAVING Co., 535 Pearl St., New York, we have received a really beautiful Calendar, each month having a Moss-type picture, with the usual card of days.

EVER since this magazine was issued, the advertisement of MESSRS. JAMES F. MAGEE & Co., chemists, Philadelphia, has appeared in it. They were among the very first to cater to the wants of the photographer's dark-room and to refine his wastes. Nor they do not need any commendation. They have been well and favorably known for so many years that the prime quality of their productions has become a household word in the studio, so to speak.

"THE Author's Edition" of *The American Annual* is a superb example of book-making. It is bound in white cloth, gilt edged all around. On the side at the top is the name of the author stamped in gold; while in the centre, also in gold, is the title of the book. It is decidedly unique, and does great credit to the publishers. It looks as though intended "only for the rich," but it is, in fact, the book for the working photographer, well worth a place among the standards. Scovill Manufacturing Co., publishers.

MESSRS. CHARLES COOPER & Co., 184 Worth St., New York, have given us some interesting details recently pertaining to the many fluctuat-

tions and changes which have taken place in photography since they began the manufacture of chemicals for the craft. We shall have more to say of them presently. COOPER'S chemicals have no superior, and are sold all over the land.

OUR "BIG OFFER."—We were obliged to stand aside with our "Big Offer" for a few weeks, until we could bind up a stock of some of the books included. It will be seen by the advertisement that we are now ready again to supply four admirable books, worth \$8.00, for \$4.00, post-paid. Those who are forming libraries, and who want good, practical reading during the winter, should secure this quartette of textbooks now.

THE BLAIR CAMERA Co., Boston, in addition to their other enterprises, have undertaken to decorate the fourth page of our cover for the rest of this year, and, as will be seen, make a grand beginning. We have watched the steady and sure growth of this now immense establishment ever since its birth, and well remember the day when Mr. T. H. BLAIR explained to us his first piece of apparatus manufactured. Since then he has overcome all opposition and drawbacks, and has taken place alongside of the very first manufacturers in his line. A determined purpose to supply only the best has been inflexibly adhered to, and with most satisfactory results, for now the Blair Lucidograph and other cameras go to all quarters of the world.

Mr. J. D. CADWALLADER, the veteran photographer of Marietta, Ohio, has admitted Mr. SWISHER to an interest in his business, and the firm now is CADWALLADER & SWISHER. At Parkersburg, W. Va., Mr. CADWALLADER has also taken a partner—Mr. MOULTON. Our best wishes follow these emulsions of old blood and new.

Mrs. FITZGIBBON CLARKE, of the St. Louis *Practical Photographer*, surprised us with a New Year present of a bound volume of her magazine for 1886. It is very handsome and acceptable, and will take a place among our "working tools."

A PREDICTION.—Next season the outdoor worker will be supplied with speedy orthochromatic plates requiring no yellow medium between lenses and plates, and securing for him a rendering of color values as they appear in nature, and which will astonish him.

ANOTHER entertaining and useful manual comes to us from England, entitled *Practical Amateur Photography*. It is by our talented correspondent, C. C. VEVERS, author of "Dry Plate Photography," "Successful Photography," etc., Horsforth, Leeds. It is very practical, plain, and to the point. In addition to complete, simple, and reliable instructions in the usual routine of dry plate photography, the work contains directions for working Eastman's films and bromide paper, Woodbury tissue, carbon, platinotype, alpha, and other printing processes; portraiture, retouching, and enamelling; also formulæ for alkaline pyro, ferrous oxalate, potash, soda, sodic sulphite developers; tungstate of soda, borax, phosphate, acetate, and lime toning baths, and is thoroughly brought up to date. The price, sixpence, seems very low to us. A postal order for 25 cents sent to the author would secure a copy. We shall refer to it again presently.

THE February number of *Scribner's Magazine*, of which 125,000 copies have been ordered as a first edition, will contain a most interesting article, by Mr. JOHN C. ROPES, upon the "Likenesses of Julius Cæsar," with eighteen portraits, one of which, engraved by Mr. W. B. CLOSSON, will be the frontispiece of the number. This will make a very interesting number for the study of photographers.

DEAD.—We have received the following:

CHICAGO, January 3, 1887.

THE PHILADELPHIA PHOTOGRAPHER has been kindly sent to the Chicago Photographers' Association, in my care, for some time past. As that Association has ceased to exist, please discontinue, and oblige  
Yours very truly,

F. H. DAVIES.

THE firm of JANENTZKY & WEBER, Philadelphia, dealers in artists' materials, has been dissolved, and a new one—F. WEBER & Co.—formed as successors. It is well known that for many years Mr. JANENTZKY has resided in Europe, and that the American business has been conducted by Mr. F. WEBER, the chief of the new firm. May the grand success of a quarter century attend the new that attended the old house.

THE report of the Secretary of the P. A. of A. reached us as we were closing for press. It will appear in our next issue. Balance, \$1765.40.







*P. H. Rose*



CONRAD BUILDING,  
PROVIDENCE, R.I.

# Philadelphia Photographer.

EDITED BY EDWARD L. WILSON.

Vol. XXIV.

FEBRUARY 5, 1887.

No. 291.

## PRACTICAL POINTS FROM THE STUDIOS.

**ALUM BATHS IN THE MANAGEMENT OF GELATINE PAPERS.**—The most common faults with gelatine can be avoided by the use of alum-baths. The reason of this is because gelatine always lacks a certain hardening, even when the white of an egg is applied in the process of silvering.

For brom-silver gelatine pictures it is recommended to dip them, after the development, without previous washing off, in the following solution :

Warm Water . . . . .	800 grs.
Alum . . . . .	30 "
Lemon Juice . . . . .	10 "

The solution must be used cold; after some minutes, the plates must be washed off three or four times, and fixed in fresh fixing-soda solution.

Another method is this: The developed picture is only soaked a few seconds, then placed for three minutes in a bath consisting of

Water . . . . .	1 litre.
Chrom-alum . . . . .	30 grs.
Alum . . . . .	50 "

The fixed copies can be dipped in the same bath fifteen minutes, without previous washing off.

With aristo-paper, also, in the direct print, the use of an alum-bath between washing and toning is serviceable. The pictures tone more uniformly, and dry more rapidly.

For the fixing, also, alum-baths are re-

commended. For this purpose, two solutions are required :

(a) Water . . . . .	1 litre.
Fixing Soda . . . . .	150 grs.
(b) Water . . . . .	200 "
Alum . . . . .	60 "

Both solutions should be mixed together, and the mixture filtered for twelve hours.

All of these baths should be used cold.—*Wochenblatt.*

**A NEW PROCESS TO ENAMEL ALBUMENIZED PAPER PRINTS.**—This is readily done by applying the wet prints to sheets of gutta-percha having a polished surface. These prints are far from being as brilliant as those obtained by the ordinary enameling processes.

M. Vidal thinks that a very similar result could be obtained by simply using plates that have not been used with talc. The albumen, being coagulated, would not adhere to the glass; there is but one precaution to be observed—that is, to dry in a room in which there is no current of air, or between sheets of bibulous paper.

**TO CUT THICK GLASS TUBES.**—The following method of cutting thick glass tubes is given in *La Nature*: Wind an iron wire of half a millimeter in thickness around the glass tube, and connect it with a galvanic battery of sufficient power to raise the wire to a red heat. Then put a few drops of water near the wire upon the glass. The latter will then crack in the direction of the wire, and the thicker the glass, the more exact will be the fracture.

## ON ATTITUDE.

IN these times of depression it behooves the enterprising photographer to exercise his inventive genius in order to induce patronage. It is never well to settle down to any stereotype methods of our own or of those from whom we copy. Patrons become tired of the same old, old positions, and there are always enough ready to take up with "something new" to make it "pay" for a little care in catering to them.

We are led to these remarks by the frequent wail which comes to us from the "dull" photographer from various directions, accompanied by the plaintive query, "What shall I do to be busy?" And we will try to make a suggestion for the good of all.

FIG. 1.



"Autumn Leaves." By Jennie Brownscombe.

No time is ever wasted in the study of attitudes. No two positions can be precisely alike. With such an infinite variety possible; then, what is impossible? In this age of pictures so full of suggestion, no photographer has a right to neglect the study of position and arrangement, in order that he may the better meet the requirements of his art under the skylight.

He often pleads that he does not "know how," but in his heart he must feel guilty when he does so, for we have placed many a lesson before him, and if he *wants* to learn from them, he readily can. We do not wish him to become a mere imitator, a copyist, a plagiarist, of other men's ideas. But we want him to be influenced by suggestions, just as he breathes the air and takes warmth and life from the sunshine.

While we advocate the careful adherence on the part of every photographer to orthodox portraiture, *i. e.*, to positions which are most natural in the home, yet it is not only good æsthetic drill, but also a bringer of revenue to study attitudinizing in a more picturesque style. To every studio comes, more or less, persons who will bear, so to speak, attitudes out of the ordinary run.

For these, one must have the help of proper and harmonious backgrounds and accessories. For suggestions, appeal must be made to the variety found, rather outside of the household, and yet not necessarily away from the scenes met in ordinary life at one season or the other. To further explain our point, we add a few illustrations.

The first, "Autumn Leaves," by Jennie Brownscombe, is full of happy sentiment; just as full of artistic suggestions for posing a congenial couple, and easily possible with the appliances to be found in almost every studio.

Another splendid example comes to us from England. Some time ago our worthy cotemporary, *The Camera*, was embellished with a lovely full-page Meisenbach autoglyph of "The Gleaner." The expression of our admiration for it, in a letter, to our genial and obliging

*confrère*, the editor, T. C. Hepworth, Esq., caused him to send us a plate of "The Gleaner." The pleasure of the gift we share with our readers, and make it serve as our next suggestion.

It reveals its own possibilities and advantages as a studio picture, and is most worthy of careful following. Rarely does one find, either, an autoglyph superior to it. The

FIG. 2.



"The Gleaner."

original photograph from which this was reduced is a panel size, and was taken by Messrs. Lambert, Webster & Son, of Folkestone, England.

Are we understood sufficiently now to drop the subject and leave the further study of it in your hands? We do not expect to move you all in one direction; but if the incoming of results from those who try continues as now, these suggestions will be followed by more anon.

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### FIRST ANNUAL EXHIBITION OF THE COMBINED SOCIETIES.

THE first annual exhibition of the combined work of the Photographic Society of Philadelphia, the Boston Camera Club, and the Society of Amateur Photographers of New York, including, also, exhibits from prominent American and European amateurs and professionals, will be held under the auspices of the Society of Amateur Photographers of New York, March 26 to April 2, 1887, at the Ortgies' Gallery, 845 Broadway, near Fourteenth Street.

The Committee of Arrangements, appointed from the three societies, is as follows: C. W. Canfield, F. C. Beach, John T. Granger, Robert S. Redfield, and George E. Cabot.

A full copy of Terms of Agreement and Rules adopted may be had on application to Mr. Canfield.

The exhibition will be inaugurated on Saturday evening, March 26th, at 8 P. M., by a private view, open to members and their friends.

The exhibition will remain open daily, from 10 A. M. to 5 P. M., and 7 P. M. to 10 P. M., during the following week, closing Saturday afternoon, April 2d.

Admission, 25 cents. Season Tickets, \$1.

All pictures must be sent, charges prepaid, to the Society of Amateur Photographers of New York, 122 West Thirty-sixth Street, New York City, endorsed "For Annual Exhibition," and delivered before 9 P. M., Saturday evening, March 19, 1887.

No pictures can be received at the gallery.

All correspondence must be addressed to C. W. Canfield, Chairman, 122 W. Thirty-sixth Street, New York, N. Y.

Entry forms will be ready for distribution to applicants from abroad on February 1st, and to applicants in this country, March 1st.

The exhibition is open and unrestricted, except as noted in the Rules. Amateurs and professionals are alike at liberty to compete, although the judges will be instructed to give the preference, other things being equal, to work entirely done by the exhibitor.

The names of the judges will be announced hereafter.

As the space at the disposal of the committee, while ample for an ordinary exhibition, is still more restricted than they could wish, it is respectfully suggested to intending exhibitors that they aim rather to send a few choice examples of their work, than a large number of specimens of only average merit.

We specially commend the last suggestion of the committee. The exhibition must be a brilliant affair.

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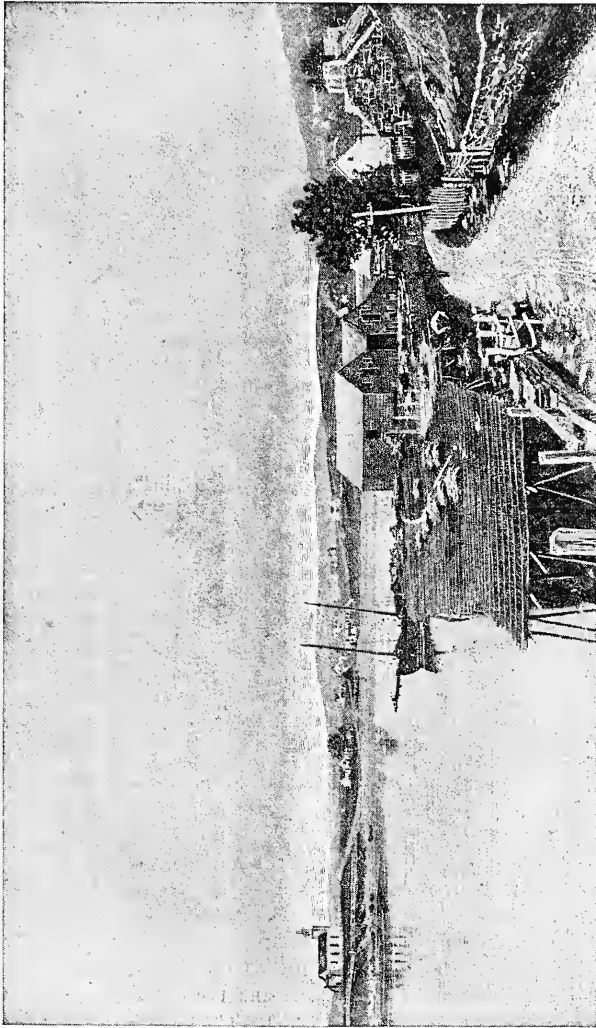
### ART IN NEWFOUNDLAND.

WE have before this called the attention of our readers to the field that lay open for photography in illustration. Our art can be made a most powerful aid to the newspaper, and also can give a great deal of artistic pleasure as well as valuable fact. The craft are coming to appreciate this, and to apply it, more and more; and among the foremost and most successful in so doing has been Mr. S. H. Parsons, of St. Johns, Newfoundland.

Mr. Parsons is an old and skilled photographer, and his excellent work must be appreciated wherever it is seen. The editors of the Newfoundland *Evening Telegram* and *Colonist* showed good journalistic instinct when they selected a large number of his views for reproduction in the Christmas issues of their papers. Nothing could be more appropriate, nothing more interesting to friends elsewhere. And nowhere, we think, could a much better, more artistic, and characteristic set of local views have been gathered together, than those taken by Mr. Parsons. They are excellent all through. Fifteen views are given together on a large sheet, 18 x 24, supplement to the

*Telegram.* The reproductions were made by the Moss Engraving Company, New York, which would guarantee their excellence. But the Company were so much pleased with their artistic excellence, also, that they have asked the privilege of keeping the

little landscapes, fill it out; all even, good work. One of the best, a view of "Spaniard's Bay," by courtesy of the parties, we reproduce herewith. Our readers will notice, besides the excellence of a rather difficult reproduction, the feeling and character



Spaniard's Bay, Newfoundland.

MossTYPE.—From photograph by S. H. PARSONS, St. Johns, Newfoundland.

plate as a specimen of their work. And the views are such as the Newfoundlanders may well be proud of. A superb harbor view is on the centre of the sheet, with others grouped around it. Prominent buildings and localities, and some charming

of the picture; and the excellent composition—the fine judgment shown in the placing of the camera, catching the pleasant sweep of the road, and houses, wharf, and vessel, all in good relation to each other, making the whole an artistic success. New-

foundland is sure of a good presentation in such apt hands as Mr. Parsons', and the results reflect great credit on him and his city.

Besides his contributions to the artistic excellence of his home newspapers, Mr. Parsons sends us some of his views very elegantly mounted as Christmas cards. The mounts, black and dark green, have handsome ornaments in gold designed by Mr. Parsons himself. The views confirm us in our estimate of his skill, one especially, a mountain view across water, being really a gem.

The Christmas designs for these last were printed by Messrs. W. A. Mansell & Co., London, England.

We wonder that those of our patrons who make landscapes do not give attention to this "Christmas Card" idea.

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## PHOTOGRAPHY IN ASTRONOMY.

### THE GREAT LICK TELESCOPE, ETC.

THE *Observatory* is the title of an astronomical journal published in London and edited by the officers of the Greenwich Observatory. They have just issued a "Companion to the Observatory for 1887," a little pamphlet, containing a great amount of valuable data for astronomers put in very convenient form. It contains all the facts of the common almanac, the times of the principal meteor showers, an ephemeris for each of the planets, the eclipses of sun and moon, occultations of stars by the moon, the phenomena of Jupiter's satellites, positions of the satellites of the various planets, a list of stars with remarkable spectra, the places of variable stars and times of their minima, a list of binary stars, and the positions of various lunar craters. The value may be slightly impaired from the fact that Greenwich time is given, but the owners of telescopes will find abundant use for it. The price is one shilling, and it can be had of Taylor & Francis, London.

Photography is playing a more and more prominent part in astronomy. The eye looks a moment and sees all that can be seen, but a photographic plate will accumulate impressions by the hour. By the aid of the telescope, observers have been conscious

of nebulae around some of the stars of the Pleiades; but with the addition of the camera, and an exposure of several hours, an English gentleman, Isaac Roberts, has succeeded in obtaining some wonderfully clear views of the little cluster. Not only do the plates show the visible nebulae, but they also show that the whole ground is nebulous; that the cluster of stars is enveloped by patches and wisps of nebulae, which surround some of the stars as luminous atmospheres. It is of course barely possible that the stars are projected on a nebulous background, and that nothing but an accidental connection exists, but this is hardly probable. Sir William Herschel, in his early days, propounded a theory, which he himself abandoned, but which, notwithstanding, has gained undue notoriety, that the nebulae were great collections of stars, "island universes," entirely outside the universe of visible stars. But many such facts as this case of the Pleiades seem to render it pretty certain that they are within the bounds of our stellar system and connected with it.

The greatest object glass in the world—thirty-six inches across—has been adjudged good and shipped to the Lick Observatory, in California, by its makers—Clarks, of Cambridge, Mass. The next greatest by the same makers, which went to Pulkowa, Russia, three years ago, has started on its useful career in the hands of Otto and Herman Sturve. It has been used during the past year in measuring faint double stars and the satellites of Mars, Saturn, and Neptune. Herman Sturve is a young man, the third generation who have stood at the head of Pulkowa Observatory and made it illustrious for a hundred years.

The eclipses for 1887 consist of four, two of the sun and two of the moon. One of the latter will be visible here. Of the former one will be total across Russia and Northern Asia, and the other annular in the South Pacific. The meagre results obtained from the eclipse of the present year will hardly justify any very extended expeditions into Asia—the only fact of value obtained being the negative one, that the corona probably cannot be photographed in full sunlight.

The first four days of the new year will show a meteor shower, not, however, of espe-



cial note, radiating from the Constellation Quadrant. The planets Jupiter and Mars may now be studied by the telescope after midnight; Saturn is visible through the evening; Venus will be an evening star through the first nine months of the year. On the 6th of next month the moon crosses the group of Hyades and occults a number of stars, including the bright aldebaran.—J. C. in the Philadelphia *Public Ledger*.

## SILVER PRINTING ON ALBUMENIZED PAPER.\*

BY DR. ELLERSLIE WALLACE, JR.

LET me now roughly outline a routine of printing which I have myself followed successfully. The room used for the purpose should have a southern exposure. The paper, of course, may be floated anywhere, and the silver bath may be fifty grains to the ounce. My favorite formula contains half an ounce of aqua ammonia to every quart of solution, the brown oxide of silver being taken up again with a few drops of strong solution of nitrate of ammonia. This leaves the bath strongly alkaline, and enough nitric acid should then be added to nearly, but not quite, neutralize it. If a few drops of saturated solution of alum and about ten per cent. of alcohol be added, they will increase the coagulating power of the bath. The paper may be floated the night before in cool weather; and if anything occurs to prevent it from being used on the following day, it should be laid under pressure between sheets of white blotting paper, previously soaked in a saturated solution of bicarbonate of soda and dried. The paper thus protected will keep good for many days, and, I believe, would give results superior to the ready sensitized paper now so much in vogue. Fuming should not be done until just before printing. The negatives may be sorted over, placing the strong ones and the weak ones together, and having tissue paper, cut to the proper size, ready to paste on the frames, as before alluded to. The various dodges for double printing need not detain us here; but if it

\* Read before the Photographic Society of Philadelphia.

be attempted, skill and care will be required. A sufficient quantity of chloride of gold solution, one grain to the drachm of water (stock solution), is measured out, allowing, say, one grain to the sheet. This is carefully neutralized, either with bicarbonate of soda or borax, and allowed to stand while the prints are passed through several changes of water. I have generally used the toning bath at the strength of one grain to five ounces of water, taking care to have the solution lukewarm in winter weather. The bath, when ready, should be nearly free from the yellow color of the gold. If the prints tone unevenly, add a pinch of common salt to every ten ounces of bath. The fixing bath may contain an ounce of hypo to six of water in summer, or four in winter, and should be made up with *warm water*, to compensate for the refrigeration caused by the dissolving of the hypo. The prints may be left in from ten to fifteen minutes.

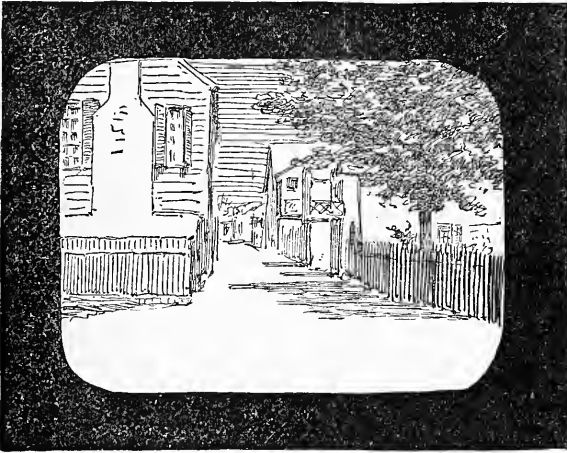
I would again insist upon having the dishes and washing tanks large enough to accommodate the prints with ease. The paper should be silvered in whole sheets, and very effective dishes for the purpose may be made of wood, protected by paraffine, a hot iron being used to melt it and drive it well into the pores of the wood. Washing tanks might be made in the same way, but porcelain only should be used for toning and fixing. If the water be full of finely divided mud, it will be necessary to drain the prints well after removal from the wash-water, and dabble them about in a gallon or two of well-filtered water, such, in fact, as is used at table.

SOLAR SPECTROGRAPHY.—At the Newcastle Photographic Association, Professor A. S. Herschel gave a very interesting analysis of the treatise of Dr. Hasselberg, of the Observatory of Pulkowa, on solar spectrography. This treatise is published in vol. xv. (1868) of the *Società degli Spettroscopisti italiani*. The work is too exclusively scientific for us to dwell upon; but we may remark that, here again, the author made use of orthochromatic plates—gelatino-bromide plates, as sensitive as possible, steeped for two or three minutes in the color-bath. We shall have occasion to revert to this subject.

### MUCH OR LITTLE. WHICH IS THE BETTER?

IN our last issue, page 59, we called attention to the excellent and instructive lec-

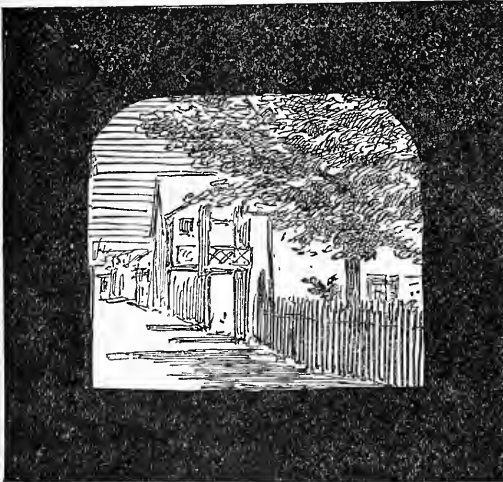
FIG. 1.



Street scene in St. Augustine, Fla.

ture of Mr. J. Wells Champney, "On the Choice of Subject"—a subject, by the way,

FIG. 2.



Showing the same view as altered.

which cannot be too well studied. Since then, through the courtesy of Messrs. E. &

H. T. Anthony & Co., we have received two of the drawings made from M. Champney's illustrations, which lend thought to the subject again, though to a phase different somewhat from the ones touched upon in our last. We copy from the Society's official report, *verbatim*, as follows:

Mr. Champney: "Here is a puzzling picture. It is an architectural scene, and presents a strong contrast to the ones we have already had. For that scene I have prepared two mats. If one is to send that picture abroad to represent the variety of architecture, let it go as it is; but if one is to keep it for one's self because of any architectural interest in it, I would like to name the object of interest, and that is the view

down the road. (Placing mat.) That is, to me, very pleasant and agreeable. There is no waste of space. I remember that old street which you see there, with its Spanish balconies. I think we could sacrifice more, and so I am going to present to you this form as meeting still better the requirements of composition.

"Now, if you will compare it with the one shown before, you will see that we make our shape play an important part in the composition. We get, as you see, a little bit of white coming down on the frame. In one case the masses are white and the sky blue. If I were sketching that, that would be the selection I should make."

Almost any picture can be taken by the student as a lesson in composition. Thoughtful ob-

serva- tion is always beneficial. The most is not always the best, even with boots.

## THE INTERNATIONAL EXHIBITION AT BRUSSELS.

TELEGRAMS from Brussels announce that "Since Major Buis has at length undertaken the presidency of the committee for the 1888 International Exhibition, the enterprise is moving rapidly forward." The King and the Minister of Finance recently received the committee, and the whole plan, the outline of which has already been sketched, will be published very soon. The "Contest of Sciences and Industries consist in this: that each exhibitor shall produce the most perfect article in his branch; and that the most perfect result shall receive, besides the large diploma, a prize in money." In the exhibition of steam-engines, for instance, that machine will obtain the prize, which, with the least weight, the least bulk, requiring the least fuel, furnishes the greatest moving force. *In photography prizes will be awarded for the quickest working apparatus which will produce the truest colors, phenomena in nature, biological phenomena, chemical and mechanical processes.* In surgery, a special prize will be given for the best portable instrument that will not only be of use in relieving the pain of a soldier wounded on the battle-field, but which can be used by the soldier in his own behalf; 400,000 francs are assigned for prizes in money, and the jury reserves the right to adjudge money prizes to those, also, who produce, if not the most perfect thing, at least that most nearly so, or to divide the prize-money among the most deserving. These statements, which are taken from the previous decrees of the directors of the exhibition, show, at least, that this exhibition lays claim to a general participation on the part of inventors. Dr. Vogel, the editor of the *Mittheilungen*, adds to this quotation the following remarks: "From the fact that photography is placed by the side of the most important means of lifting of modern industry, viz., the steam engine, in the discussion of prizes, it is evident that the matter was considered by non-professionals, for all professional men know that the apparatus not only determines the furnishing capability, but also the process to be used, and that certain pho-

tographic apparati are exceedingly well adapted for some purposes, and for others, again, they are very inadequate."

[Translated for *The Philadelphia Photographer*.]

## PHOSPHOROGRAPHY APPLIED TO THE PHOTOGRAPHY OF THE INVISIBLE.\*

BY MR. CH. V. ZENGER.

IN observing Mount Blanc after sunset, at the beginning of September, 1883, I was struck with this fact, that the bluish-green glimmer remained visible until 10.30 P.M. I was led to think that the ice on the summit, mixed with the *débris* of the carbonate of lime, emits a light very similar in color to that of the water of Lake Lemman, and that it might be possible to fix the image of the mountain at night by the phosphorescent light of the ice, which is very actinic.

On my return, I made an experiment which consisted in projecting the images given by photographic lenses in the camera, on a glass plate covered with a coating of the phosphorus of Balmain, uniformly spread over the plate, as in the case of a colodionized plate.

After an exposure of a few seconds, I took the plate from the camera, in obscurity, to place it in contact with a dry photographic plate, not too sensitive. After one hour's contact, in obscurity, the image appeared as if produced in the ordinary way, with all the details.

But the observation made at Geneva caused me to think that the carbonate of lime, illuminated by a bright sun during the day, might emit invisible rays, but highly actinic.

I made the experiment during the night of May 17th of the following year, the sky being cloudy. The exposure of the place at midnight, on the terrace of the Astrophysical Observatory of Prague, during fifteen minutes, gave fair images of the surrounding towers and edifices, after a contact of the phosphorescent plate with the photographic plate, continued until the morning of the following day. It follows, therefore,

\* Paper read before the Academy of Sciences at Paris.

that there are radiations of considerable actinism emitted by insulated bodies, even up to midnight, in the absence of all other light.

I repeated later these experiments with printed paper, that I placed during the day in full sunlight. After an hour's exposure, I placed it in contact with ordinary photographic paper in the dark-room. The impression of the paper was obtained in a few hours, so that there is no necessity for developing the image, but only to fix it. The letters appear distinctly black, and I made use of this method to copy printed notes.

This experiment finally led me to suppose that light may be absorbed and then slowly returned, and that the images of invisible bodies may be fixed in obscurity, by simple contact or by photographic apparatus.

May it not be possible that a number of celestial bodies is in existence, which, being illuminated during periods of more or less duration, give up afterward this light when they are surrounded by darkness, but as actinic light, in the same manner that walls illuminated during the day give out during the night the absorbed light?

This might be utilized in the making of celestial charts, for, with a telescope having an opening of eight inches and a focus of forty-one inches, a few seconds suffice to print the phosphorescent plate and to represent stars up to the ninth magnitude, when, in obscurity, the contact of the phosphorescent plate, thus printed, is made with a gelatino-bromide silver plate.

Quite recently I conceived the idea to make experiments with bodies that are fluorescent and sensitive to actinic light, like the uranates and the nitrates of uranium.

By imbibing English paper, of very equal texture, with a ten per cent. solution of nitrate of uranium, and producing direct contact with a drawing, printed paper, etc., previously exposed, or by producing in the camera the image given by the photographic lens on prepared paper applied to a glass plate, I have always obtained latent images which may be developed after the lapse of months, provided they are kept during this time in obscurity and in air that is entirely dry. It is also possible to obtain images of

a number of bodies, in obscurity, when they possess, like carbonate of lime, paper, etc., the property of slowly giving back the light absorbed during insolation.

It is possible to reproduce objects which hitherto have remained entirely invisible to the eye, by making prolonged exposures with lenses or mirrors of very short focus, on plates coated with phosphorescent or fluorescent substances; also, by operating in obscurity and during a sufficient length of time, with a plate more or less sensitive, bromide of silver, collodion, or gelatine emulsion.

I found an advantage in coloring these plates with chlorophyl. To the collodion, add an ethereal and concentrated solution of chlorophyl; whilst for gelatine plates an alkaline solution of chlorophyl should be used. The plates thus prepared, isochromatic and of a grayish-green, are sensitive for all the radiations of the solar spectrum, from the ultra red to the ultra violet.

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### QUERIES, CONUNDRUMS, AND CONCLUSIONS.

M. K. F. As you are always willing to give information, allow me to ask you for a few points upon the following subject:

A friend of mine has a little trinket attached to his watch-chain, consisting of a miniature telescope, upon looking into which may be seen a tiny transparency made from the portrait of his wife. The transparency is not larger, apparently, than the head of a pin. Now, what I want to know is, what optical apparatus is necessary to make these tiny transparencies? I am quite successful in making transparencies of ordinary sizes, but I do not know how to go about the task of producing them so small, yet so full of detail. The tubes with the small magnifying lenses can, I suppose, be obtained from any optician.

If M. K. F. will refer to Mons. G. Tisandier's excellent *History and Hand-book of Photography* (see notice in our *Big Offer* advertisement) he will see a full explanation of the photo-micrograph, and several drawings of the apparatus used in making the little "charms" he alludes to. A "re-

ducing" camera is needed. The pictures are simply glass transparencies of diminutive size. We know of no one in America who makes them. Is there such an one?

ONE or two queries came to us referring in complimentary terms to the very helpful articles of Mr. Thomas Pray, Jr., and we took the liberty of referring them to him. With his customary generosity he responds as follows:

*Mosaics* '87, seems to have spread like the measles, sort of "struck in," and from the inquiries which chip in on my desk, there seems to be a closer reading (and more trouble) to find the reason why. When a man or woman asks a *sensible* question, which shows that they have wrestled with the trouble, it is a pleasure to answer. So, my friend Wilson, with your permission, or indulgence, we will sort out some of the inquiries which have drifted in from *Mosaics*, that are of general importance.

Q. Are the two kinds, red prussiate and yellow prussiate of potash permissible in Prof. Newton's developer? I ordered yellow of ———, New York, and they sent red, and I have had trouble with my development.

A. Prof. Newton distinctly stated in his original formula, yellow prussiate of potash. Red prussiate is *not* permissible; is, most emphatically, *not* allowable in any developer of bromide of silver plates, and is decidedly injurious; and the same house has done the same thing before.

Yellow prussiate has been dropped from the developer by Prof. Newton in his last formula, probably quite as much because of the annoyance caused by just such careless filling of orders, and not for any lack of value in the original formula.

Q. I have been trying Newton's dry-plate developer on several brands of plates, with the uniform result of veiling the shadows; find it impossible to get clear shadows or edges of negatives that have been completely protected from light; the longer the plate remains in the developer, the more fog; have used the purest water and chemicals I could get. Have also tried the developer advised by T. Pray, Jr., in last *Mosaics*, with the same result. I know it is not light fog, as

plates developed with oxalate in the place, give clear edges and shadows. Is it sulphate or sulphite of soda, the third ingredient in number one?

A. To answer all this would be considerable of a task. Perhaps the packing between the plates has injured the edges; the oxalate would show this *less* than pyro, and it would be hardly possible that *several brands* of plates would be injured in the same way; then if the exposure was not pretty near correct, and some brands of plates used, the shadows never would be clear, or the edges either, as in the developing they "cloud" over, and the hypo does not give clear glass where we naturally look for it. With any Cramer, Stanley, Forbes, or Carbutt old style Special 20, and proper development with either of the developers referred to, you can produce clear shadows and beautiful modulations, the high-lights looking bright and crisp; but you can cloud the shadows, and reduce the crispiness *by using the wrong bromide solution*. Bromide of potash, or of ammonium, are not nearly so well allied to Newton's developer or the carbonate of soda developer, as the solution of bromide of soda, fifteen grains per ounce, used very sparingly and the development kept slow. *Don't* rush development if you want a brilliant negative, and *don't* use the developer but one time, unless it is perfectly clear, and is *not* covered with oxydized particles.

There are plates that do not develop with clear shadows, owing to some peculiarity of the emulsion, or even when the emulsion is not prepared exactly like "the other lot."

There is a strong probability, however, that if the water used in this case has quite an amount of lime in it, that our querist will find a ready solution by cutting one plate with his diamond, after exposure, and develop one part with an oxalate solution to which has been added one drop (extra) of sulphuric acid, (c. p.), if the plate is a cabinet; and the other by any good pyro developer properly handled; if the oxalate gives clear shadows, and the pyro does not, then repeat the experiment by very slightly acidulated pyro; and if the shadows don't clear up, and the exposure is known to be right, the plates are in some way at fault. In the writer's southern and western tramps the same trouble

has been found occasionally, when a trial plate was developed, but the dozens of exposures, when back home, came out one by one, clear and clean.

Sulphate is wrong. Sulph (eye) te is right.

There are people in the trade who fail to keep sulph (eye) te close corked, and it soon becomes sulphate, and sulphate of soda in an alkaline developer, is of as little use, chemically, as more water in already watered milk.

[We advise our querist to read the "Things to Don't," by Mr. Pray, in *Mosaics* 1886 (not 1887), page 71.—ED. Q. C. and C.]

L. A. B. I am a photographer, and have for some time thought that if I could procure the details of photo-engraving, so that I could make a stereotype of a building or an animal, which could be printed in the common newspaper printing-press, I could add to the small profits I make on cabinets at \$3.00 per dozen. I have tried hard to find out what I could of the process. I know they get a black and white negative by tracing in ink on an untuned photograph, and then bleaching away the photograph in chloride of mercury. A bichromated gelatine film is made, printed, and swelled in water, but I have not been able so far to obtain satisfactory results. Now, I write to ask if you would kindly give me the details of the process; or is there any book or paper that treats of it thoroughly? If not, and you will have the whole process written out for me, I shall be glad to send you what it will cost on hearing from you. I write this thinking you might be able to assist me; if you can, please do so.

We regret that no thorough and complete instructions have as yet been published. For several years the process was a secret with one or two. Many now practice it, and from them we have gathered details which will enable us shortly—in a few months—to publish a complete and practical Manual of Photo-engraving. Meanwhile, the disconnected papers already given in our magazine will put our correspondent on the track, and place him far ahead of our proposed publication. See our last volume, pages 16, 44, 263, 338, 571, 719, and 764, and page 46 of

of our last issue. Also, the first article in *Mosaics*, 1887.

M. A. L. Asks for formulæ for chemicals used and instruments needed for enlarging by electric light. Can, and will any one help him?

"LIEBICH." Please give us in the next issue a point in regard to *mounting on muslin* or linen.

If the pictures are to be used for binding, the prints and muslin should be dampened, and starch paste used. The drying should be between clean blotting-pads. A better way is to mount the prints back to back, with a strip of linen (or "guard" for binding) between them at one end. Method of drying as above. Further details on this, find from an expert on another page.

"ROUGH TIME" finds fault with "every burnisher I try." The probability is that he is habitually slovenly, and does not keep things clean. The following are the directions for using Mr. Entrekin's improved and duplex rotary burnishers:

Before heating, see that the polished or lower roll is perfectly clean: then place the gas heater or oil stove (as the case may be) under the fire pan, having the flame parallel with the roll. Turn the handle occasionally, so as to equally diffuse the heat through the roll. Wipe the moisture from the polished roll just before it evaporates, so as to prevent its drying and leaving stains upon its surface. See that the lower roll is heated to the temperature of a laundry iron when in use, and perfectly clean. Adjust the distance of the rolls according to the thickness of mounts, and burnish. Lubrication unnecessary. Use light pressure. In order to secure the best results, the lower roll must be hot and perfectly clean.

Mr. Entrekin's Diamond Paste, for polishing and cleansing the burnishing roll, is excellent.

"ORTHOCHROMATIC" wants some information as to the use of cyanine in orthochromatic photography.

Cyanine is a blue coloring substance which is very interesting in a photographic point

of view, owing to the fact that, applied to dry plates, it allows the reproduction of nature with truer tones than had been hitherto obtained. It is used with advantage for the reproduction of paintings, and here is the method of operating pointed out by Schumann:

Prepare a solution of cyanine (1 grain) in absolute alcohol (500 c. c.). The gelatine bromide plate should be free from iodide of silver; it is placed in a first bath for two minutes, to soften it; distilled water, 200 c. c., concentrated ammonia, 4 c. c.; then in a second bath, also for two minutes, composed as follows: distilled water, 200 parts, ammonia, 2 parts, absolute alcohol, 10 parts, solution of cyanine, 6 parts. The wet plate is quickly placed on bibulous paper and thoroughly dried. The plates should be exposed soon after their preparation, as with time they lose their sensitiveness. The baths should be used fresh, as they quickly become decomposed. The development of cyanine plates requires care; it should be done slowly, and using a strong developer.

Mr. Schumann has recently studied the orthochromatic properties of erythrosine, and of cerulcine; erythrosine, in the ammoniacal bath, gives to the plates great sensibility for the yellow, and seems much superior to bromo-eosine, azaline, and cyanine; for the orange, however, it is much less sensitive than this last. Cerulcine renders exactly the red, but for the orange, it is surpassed by the cyanine.

## ART AND PHOTOGRAPHY.

BY J. F. MOSTYN CLARKE.

IN commencing some articles having for their subject a combination of "Art" and "Photography," the author has no intention of treating the chemical, that is the purely scientific, side of the latter, more than will be necessary to make the work intelligible to the beginner, or to any who may find in it what is useful. And he gladly avails himself of the opportunity given by this introductory chapter to state briefly the objects and reasons for its writing.

There are many people who, amid the daily pressure of their occupations, are unable to give time to the study of drawing,

but, at the same time, to whose cultured minds art, in its many forms, is a necessary of life, whose standards in art are high, and who would gladly avail themselves of any method giving without much labor or close application correct pictures in black and white, yet having sufficient artistic feeling to gratify their taste. To show how this may be done, using a camera as draughtsman, is to be the object; not that the author is so presumptuous as to state that he can make, or teach another to make, pictures of a class equal to drawings or etchings of a high order; but he will venture to say it is possible to produce by the means already mentioned, that which would gratify the most artistically sensitive eye almost as much as these works of art.

But it must be remembered that studies in black and white at no time can give as full a satisfaction as works in color, taking for the moment both to be perfect. Hence, in furnishing the walls of a room, one or two drawings in color, however simple, if they have real merit, will enhance the value of surrounding studies in light and shade.

Now, in photography as it is practised in the present day, there are two elements which must be changed considerably before the art fulfils, on the largest scale, its highest duties. These elements are, the class of work demanded by the public, especially in portraiture, and the methods used for its production.

Element number one, with its attendant troupe of so-called "artists," must, it is to be feared, always remain a fact. It is the same with painters and their patrons. There must always be a lower order of artists whose object is not their art, but the money they make by it, who pander to the taste of buyers liking works of large dimensions, replete with much variegated gold frame, and resplendent in their "nice, bright bit of coloring"; so is it in photography.

In portraits, the public demand, and must be given, that to which they have become accustomed, and it is to be feared, like, for they know no better, nor will allow their instincts to lead them to better; with these this writer has but little to do.

Examine with an analytical eye a friend's face as he or she sits near you; but take care

it be one of whom you have a photograph, in order that you may practically apply the following remarks: What do you see? A structure built upon a framework of bones, to which are attached muscles covered by the skin; these muscles take certain forms or attitudes expressing more or less the character of the mind behind them; this is termed the modelling of the face. It is the same throughout the body, the natural positions, even the very shape and action of the parts, speak eloquently of the character; that upright figure, and broad, well-opened chest, combined with easy movement of the sinewy and well-shaped limbs, shows physical activity and a power to endure; that broad, square forehead, with the prominences over the outer side of each eye, and the slightly-marked perpendicular lines continuing upward from the nose, denote broad-mindedness, united with perception and thought; that clear-cut nose indicates a sensitive disposition; the quick and watchful eyes that look you calmly in the face, are fearless in their truthfulness. So one could go on through the whole of that face and figure, and many others; so do true artists every day and always examine all faces they come in contact with; and so must you who are anxious to do real work in drawing with your camera, examine faces, and learn to understand characteristics, as without this understanding it is impossible to portray, for you must be master of your material, and the sitter is not the least part of that. You must know what every line expresses in a face, as well as their purpose in the composition of a picture.

Now, having studied your friend well, you take the album which contains his portrait, lately executed by a first-class photographer; perhaps only yesterday you thought it charming, saying to yourself: "If only I could succeed in one like that!"

Now, as you look, a sense of dissatisfaction steals over you, instinctively you glance at your friend where he is sitting, and, in order to see him in the position of the photograph, you attract his attention to some object that will necessitate his looking in the right direction. Then the thought is formed: "I wonder I never noticed before their having destroyed the firm appearance

of the flesh; having made the forehead smooth, and, look quite narrow. All the characteristic lines have been removed, and in their place are left two nice little soft shadows—one downward a little way into the cheek from the eye, the other from the nose downward and outward, touching the corner of the mouth"—this on the shadowed side of the face; and, besides, you think: "How stiff he looks! I never saw him in that attitude." So you analyze until you are constrained to ask: "What makes you look so peculiar here? What were you staring at?"

It is little to be wondered that your friend in his portrait has this unnatural appearance, when we consider the treatment he underwent.

First of all, he was shown into the studio, out of a more or less dark waiting-room, so that the light dazzled his eyes considerably; then he was placed in a chair, and most probably the "artist," by pulling and pushing, worked him into that most unnatural position seen in the photograph before you. Next, a head-rest was brought to bear on the back of the head (an instrument at all times uncomfortable in its results, as, through their reaction against it, the muscles become rigid), while fixedness was increased by his being given some small object on which to concentrate his gaze; this being wrong in principle, as there is a tendency in such cases for the eyes to become strained.

In the meantime, an assistant at the camera has focussed the image so sharp, by means of a magnifying-glass, that it is a map of the sitter's face, showing even the tiniest outlines. The cap of the lens is then removed and replaced, development accomplished, and the negative passes to the retoucher. In this process the face is generally remodelled, almost all the lines being removed by working with pencils from forehead to chin; hence its stippled appearance.

Besides the alternation of this state of affairs, at all events among amateurs, the author has yet another object, quite as important in his eyes. Among the public there are many who have a prejudice against artists who use photography; now, this is surely wrong, for the art may be made most useful in securing details that



cannot be sketched—the grouping of moving figures, and such like; while between a man or woman who paints from a photograph, and one who only sees it as a means of study, there is a vast difference. It will be his endeavor to help these by giving them hints to enable photography being practised without a very deep chemical knowledge, while, at the same time the laws of art are kept well in view in all the manipulations.—*The Camera*.

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### OUR PICTURE.

IN our issue of July 3d last we described our visit to the new studio of Mr. P. H. Rose, Providence, R. I., and ventilated our impressions. At the same time we promised our readers a study made under the new skylight, with an engraving of the interior. We are now able to keep our promise, and to add, also, an engraving and description of one of Mr. Rose's elegant and reposeful waiting-rooms. To do all this, of course, we had the generous assistance of Mr. Rose himself in making for us the negatives necessary.

The autographs, too, are admirably done by the Moss Engraving Company.

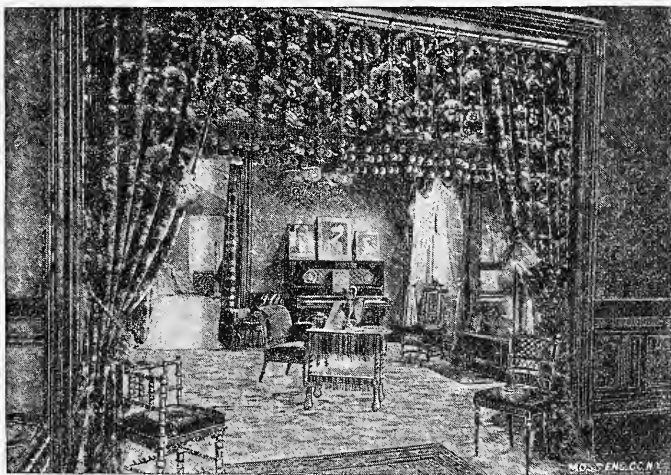
it will be found to reach the standard we have laid down.

First, then, to the waiting-room. It is a beauty-spot, a place of rest, rather than a place for the anticipation of intending torture, for if one comes to this for the purpose of procuring a portrait for posterity, with a sort of martyr-like feeling—like a lamb led to the slaughter—all that feeling will take its departure the moment of entering.

Here, all that excellent taste and artistic judgment could suggest in the line of furniture and draperies has been supplied, in order to secure a home-like appearance and to create a subduing, home-like influence upon the visitor.

The floor is carpeted with velvety moquette of tender shades. The walls are lined with choice Lincrusta-Walton, gilt, broken by broad lines of redwood. The ceiling is broken up into corners and squares in tasteful contrast, all variously decorated in colors and gilt, the centre-piece being, very properly, the sun with broad rays gleaming in every direction. The light is admitted tenderly by lines near the ceiling, glazed with stained glass, and again subdued by delicate hangings of various tints.

The furniture is most choice, the chief



The splendid study of the two young ladies who so amiably consented to serve as models needs no comment from us. Study it well with the remarks which follow and

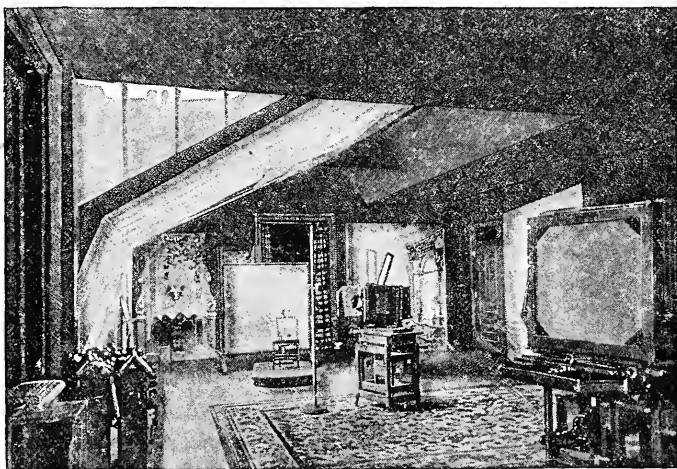
collections of New York and Boston having been carefully examined before a decision was made. A black-oak set, part upholstered with real Japanese leather, embossed

and colored richly, and part with gold-bullion Italian tapestry, is superb. A French chair, gilt and upholstered with blue velvet, is admirable—as pretty as a piece of jewelry. Ceramics and bronzes and cloisonnes stand upon the tables. Upon one table is a field-glass for the use of visitors.

A good idea is this last, for looking from the windows to the hills surrounding Providence, the beholder is constantly reminded of the lovely glimpses had when standing upon Giotto's Tower in Florence. But we are getting too far away.

From the waiting-room the skylight or studio is entered. Here, too, we see the evidence of a master head and hand, for all is well accoutred and in excellent order.

beauty. The body may be never so beautifully rendered, if the soul of truth is obscured. If the likeness is gone, the beauty is also departed. And likeness does not consist alone in the counterfeit presentment of the body. As much as possible, the carriage of the body and of the head must be as nature controls it, but quick, like a flash, at sight almost, the artist must not only discern the temper of the man, but he must deftly bring the very scintillations of the soul beaming out upon the face. He must make them create the delicate elevations and depressions, curves and lines, which make up the modulations of the flesh, and while they catch the light and receive the shadows under the lighting he has arranged,



No description can make this more plain than does the autoglyph. The dimensions are 14 feet 6 inches, by 17 feet 6 inches, and the side light is 6 feet high, by 14 feet 6 inches wide. The angle of the top-light is about 40 degrees.

In our remarks upon the capabilities of Mr. Rose as an artist we tried to delineate our ideal of the true artist. And since many of our present readers were not our patrons last July, by request we venture to "repeat history" in a measure. To our mind, the true photographic artist and artist of photography never resorts to artificiality. He holds that the highest art should always hold a soul of truth within its body of

they must be seized upon his sensitive palette. And is his work done then? No. He must repair to the darkness lest the very element which helped him should destroy all. Then there, with wondrous patience while with agile hand he pours the potent lotions upon his plate, he watches and applies, and retards, and accelerates, and moulds and forms, as the painter with his brush, as the potter with his clay, and with brains alert, until lo! the man, in the likeness of his own image. His eye for the beautiful guided by his love for the beautiful has enabled him to bring out the beauties of the soul of the man upon his face, and thus he is a promoter of refinement of the

highest type. The man who sends out a bad picture into the world is a doer of evil. If he is a poet and a true artist he will never permit that.

He must be as a magician who, from sources unobserved, and not understood by others, brings out the soul and spirit upon the face.

One has written as to the poet, "If he leave the body untenanted, it is well, for it is a body of beauty; if he beckon in an angel of light, it is noble, and he has done well for his kind; if the devil of darkness have taken possession at his word, he has earned for his name a place on the scroll of the enemies of our race." It is precisely so with the true artist—if he be a *true* artist.

And, as we have said, what a magician he must be, since during the day he must originate some means of developing visibly what soul he intuitively feels must have existence within the beauty of the bodies presented before his camera.

"Originate? Can there be anything original in photography?" it has been asked over and over again. Do not the workmen of his guild all have the same tools of light and shade to build up the image upon the sensitive plate? Verily, but originality does not consist in swinging them at random until their trickery astonishes you by the maudlin results. Nature must be rendered truthfully and yet surprisingly. The elements of character held dear by relatives and friends must be secured not only, but with a degree of refined intensity that will make them appear more lovely in the picture than they are seen even in nature. No two persons see alike exactly. It is a rare thing for both eyes of one person to see exactly alike. Remembering this the quick artist seizes upon the elements of character which he sees and adroitly brings them to the surface. He cannot tell how any more than the orator can tell you how he holds his audience. He can—he does, and therefore he is an inventor—an artist. No more passes before his eyes than before others, but he *perceives* more, because his mind is more susceptible. How many thousands and tens of thousands could say that they had *seen* the lovely effects of light and shade, which Master Rembrandt painted with such effect, after he had placed

them in rich masses of harmony upon his canvas, but none *revealed* their charms before him. Why do we fall back overcome with emotion when we enter the stanzas of Raphael in the Vatican? It is because he saw so much more in a human face than we can, and could translate it into paint upon canvas with feeling which we do not have. But, like a puzzle, we can partly understand it when it is put before us even in such a bewildering way.

The objects then are given to all of us to see. But the power of perceiving the soul—man—of bringing it out upon his face, is reserved for the mind of the true artist.

We can say no more. What else can we do, but place the studies and the rules for understanding them before you.

The rest must be yours.

To head off queries, permit us to add that while Mr. Rose, like many another good photographer, uses various brands of plates, but *Our Picture* was made on the "Eagle," for which Mr. G. Gennert, New York, is trade agent.

The following formula for development was followed:

*Pyro Stock Solution.*

Salicylic Acid . . . .	6 grains.
Dissolve in Alcohol . . .	1 drachm.
Add Water . . . . .	6 ounces.
Pyrogallic Acid, G.G. brand	1 ounce.

*Soda Solution.*

Water . . . . .	60 ounces.
Sulphite of Soda Granular	1 ounce.
Sal Soda (Crystal) . . .	1 "

*Developer.*—To 8 ounces of soda solution add from 2 to 4 drachms of pyro stock solution, considering that more or less pyro produces more or less intensity. 3 drachms will generally answer best.

This developer may be used repeatedly as long as it remains clear, but will work slower and with more intensity when old. Therefore, the fresh developer is best for short exposures, and the old is better if the plate has been full timed. In using the sal soda developer, it is very important to carry the development far enough, until the lights have sufficient intensity, when examining the plate by transmitted light.

The objective used was Dallmeyer's, and

the prints were made on the famous N. P. A. paper, supplied us by Messrs. E. & H. T. Anthony & Co., New York, by Messrs. Roberts & Fellows, Philadelphia. And last, but by no means least, we desire to call attention to the rich Arabic design upon the mounts, to the harmony between color of mount and ink, and to the skilful printing, from which no dust goes unto dust. It makes a handsome setting—like a piece of jewelry itself, setting off a gem of different water. We need hardly add that it comes from the A. M. Collins Manufacturing Co., Philadelphia.

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### THE IDEAL IN ART AND ITS RELATION TO PHOTOGRAPHY.

BY E. K. HOUGH.

IT has been maintained very generally that the Ideal in Art has no relation to photography, because that form of art deals only with the real and actual instead of the ideal and imaginative.

It is true that photography is representative or reproductive rather than creative art. It cannot give ghosts, griffins, or centaurs, nor angels and devils, as such creatures do not exist, or are not visible. But I shall endeavor to show that no form of art can be developed to a high standard, and no kind of artists can reach eminence in their art, without constant reference to the ideal, and the higher and more perfect their ideals, the more rapid will be their advancement.

All actual things are more or less imperfect. It is this very imperfection which gives them individuality, and prevents monotony. But every active human mind acquires ideas of perfect things, free from fault, without blemish, and these constitute their Ideals. Ideals of beautiful forms; ideals of perfect character; ideals of happy lives; ideals of home and Heaven. And their own progress and development depends almost wholly upon the energy and persistence with which they endeavor to realize their own Ideals.

Could we know the cherished ideals of any human being, we would have the key of their character.

The ideals of the artist are the sum and substance of all the knowledge and ability he possesses. A true artist will first have strong perceptive abilities by which to organize clear and distinct ideals, and after these are formed he must have ability of execution to realize in some form of pictorial representation his ideal conceptions.

These two ideas are comprised in the two phrases so often used in relation to art: "The Education of the Eye," and "the Training of the Hand." The full-fledged artist must have both in nearly equal measure.

The formation of true ideals is first in time and in importance, but not sufficient alone. Yet many otherwise great artists never get beyond. They lack executive ability, and "the training of the hand." But they often become great critics and connoisseurs, who discover, encourage, and guide true artists, or restrain, expose, and condemn pretenders.

On the contrary some artists have great powers of execution with low ideals. They sometimes acquire great fame by remarkable accuracy in painting any common object, as a barn door, a bank bill, or a plate of fruit, thus achieving in color what photography does in light and shade, and but little more.

The creative artist adds to this power of execution the ability to conceive new combinations, and present in pictorial form scenes past and scenes to come, or that never have nor ever can exist; yet which so perfectly realize the imaginings of tens of thousands that they accept and remember them as real.

For instance, Dante was a great imaginative artist in his conception of *Inferno*. Doré realized many of his conceptions in pictorial form so perfectly that those who study both accept their memory of Doré's pictures instead of trying to follow out Dante's imaginings.

Dickens so perfectly delineated various imaginary persons that their names have become household words in reference to the forms of character they represent. An artist who paints any one of these ideal characters, so that it is accepted by Dickens' admirers as a realization, would achieve a

triumph. Yet in doing this, nine artists out ten would use some person, suggesting the character, as model, whom they would paint almost literally. In so doing why would there be an exercise of artistic faculty any more than when a photographer selects his model, and with proper arrangements takes a picture equally suggesting the imaginary character.

Equally in either case the first and highest was the power to conceive the true ideal of the character to be represented, and the ability to see it in the model under whatever disguise. Then in executing, to separate it from all imaginary elements, and surround it with proper accessories, arrange it in proper attitude and light, and evoke from it the desired spirit and expression, and then, whatever form of art is used, so present it as to suggest to, and impress upon, the observer the intended idea with effect. Any one who can do this is an artist whether painter or photographer, and the measure of his success in such direction is the measure of his progress in his art.

Thus, by a somewhat roundabout course, we arrive again at the idea with which we started—the value and importance of the ideal in relation to photography; which relation I shall endeavor to elucidate and enforce in future papers in a more particular and practical manner than I have ever seen it presented.

FREDONIA, CHAUTAQUA Co., N. Y.

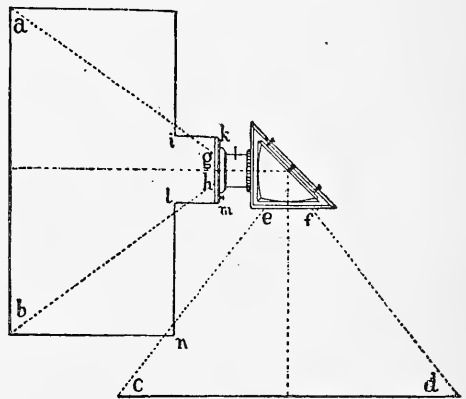
### NOTES ON THE USE OF THE STEINHEIL WIDE-ANGLE APPLANAT, WITH PRISM.

THE growing interest in all photographic processes for reproduction and photo-engraving insures a welcome for anything that will give information or help in that interesting direction.

Among other things, we owe much to Steinheil for providing us with his far-reaching "aplanat" for the purposes of copying. Its sharp and truthful rendering of the lines is not equalled by any of its compeers. And yet it does not do *all* that the process engraver desires.

It would be of great service for the process-printer and photo-engraver, if, instead of

stripping and reversing the film, the picture could be obtained reversed at the beginning, supposing the accuracy and sharpness to be the same as in the direct picture. This can be realized by the use of a well-made prism, such as is now supplied by Steinheil. It is necessary that the glass be homogeneous, that the three faces be strictly plane, that one of the angles of the prism be a right angle, and both the others measure exactly forty-five degrees, and that the three faces stand perpendicularly upon a plane, *i. e.*, that the prism be free from pyramidal faults. Moreover, the prism should have a larger opening than the objective, and its setting should be centred to the objective. These two considerations, as well as those previously mentioned, should be strictly fulfilled. We also call especial attention to the fact that an alteration or displacement of the screws found in the back of the prism setting, causes the centre of the prism to be lost, whereby the effect is destroyed.



In adjusting the lens and prism to the camera, care must be taken that none of the rays of light which fall from the object on the prism and from the lens on the ground glass of the camera, are intercepted.

The line *e c*, from the inner edge of the prism in opening to the edge of the object to be portrayed, situated on the same side, must clear the corner *n* of the camera. If this is not the case, then the head-piece, *i k l m*, in the camera must be made longer, and at the same time sufficiently wide that the lines *g a* and *h b*, which are drawn from

the back lens  $g h$  to the ground glass  $a b$ , shall clear the corners  $i$  and  $l$ . Otherwise the picture would be either cut off entirely at the edges or at least fainter than at the middle parts.

The object to be photographed may be placed either horizontally upon the floor or other suitable support below the prism, or vertically on either side of the prism, for which purpose the lens and prism are made to revolve in a rotating flange, which is furnished with each prism and which is provided with a set screw.

The focussing of the object on the ground glass is accomplished in the ordinary manner, the respective distances of the object and the ground glass from the centre of the lens being determined by the size of the enlargement or reduction.

The object—say a picture or engraving—should be placed perfectly parallel to the side of the prism which it faces, and the centre of the prism should be made to coincide with the centre of the image which it is desired to obtain on the ground glass.

The prism screws into the place of the hood of the lens which is taken off, and the rotating flange above mentioned takes the place of the ordinary flange, the whole being mounted and ready for use in an instant.

With the prism the time of exposure required is about one-fifth to one-quarter more than with the lens only.

We think that these prisms will prove a valuable adjunct to the Steinheil wide-angle copying lenses already so favorably known to photo-lithographers and process-workers, since they do away with the uncertain and annoying process of stripping and reversing the films, and save the operator a great deal of valuable time and labor.

These prisms are also very useful where it is not practicable to place the object vertically before the camera—as, for instance, in photographing fish in water, or similar subjects, which are more conveniently photographed in a horizontal position, with the prism looking down upon them, so to speak.

Messrs. H. G. Ramsperger & Co., 180 Pearl Street, New York, the agents for the Steinheil lenses, are now prepared to supply prisms also, and to give further particulars.

### “THIN” MOUNTING FOR ALBUMS.

YOUR request for some points, useful and practicable, about mounting on muslin, and kindred matters, can be answered most readily by giving the results of twelve years' experience.

The use of muslin (except in exceptional cases) for a body to mount on is not so essential as many think, and for most uses absolutely unnecessary: a large item of useless expenditure where many are to be mounted, a troublesome material to handle during the mounting, and of so little real use in the majority of cases that the question is pertinent, why not leave it out altogether? What shall we substitute? Nothing but the next print. Mount the work back to back, with just sufficient cloth for use in binding, inserted about a quarter of an inch or less between the prints on one side. It will hold, if properly done, and, like a well-glued joint, will be the strongest place.

The albumen paper by itself will, with fair usage, keep smooth and last as long as that mounted on cloth, in fact, till surface abrasion by long use consigns it to the waste.

In mounting back to back, use the prints wet, as in ordinary mounts in cards. Be particular about the starch, using it much thinner than for card work. It cannot vary much from the following proportions, and work to advantage: Starch 265 grs., water 8 ozs. Boil, with constant stirring, till it just thickens, and is still white. “Blue” starch is cooked too much, and will not work well.

Paste both prints that are to form the leaf with a uniform thin coating, perfectly free from lumps; paste also the edge of the cloth which is going between them, and lay together without air-bubbles, or if any appear, be careful to press them out. While mounting make a pile of alternate pasted leaves and thin, rather porous paper till all are pasted; these papers take up but a portion of the moisture. All being mounted are now ready to be dried by piling again, this time substituting three thicknesses of a firm and only slightly absorbent blotting paper for the thin paper previously used; too soft a paper will leave a fuzz on the sur-

face which cannot be afterward removed. On the top of the pile place a flat board, and apply about ten or twelve pounds weight, leaving them for an hour; then repack, removing the now damp blotters, substituting dry ones, and put under much heavier pressure, such as a copying letter-press.

At the end of another hour the prints are dry enough to allow the removal of all blotters, and can be trimmed and laid away, but should still have a board or book laid on them, as they are liable to curl because not thoroughly dry.

Bound books of three or four hundred pages, mounted in this manner, and in daily use for over eight years, attest the durability of works of this method, and are one-half less in bulk than had muslin of the thinnest quality been used.

Burnishing, or even rolling, of the leaves is generally worse than useless, as the surface is more liable to abrasion than that left by the blotters.

COMMERCIAL.

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### THE WORLD'S PHOTOGRAPHY FOCUSSED.

**CHANGEABLE PANORAMIC BACKGROUNDS FOR THE OPERATING ROOM.**—Mr. T. G. White calls attention to his new movable backgrounds. He uses a system of rollers similar to those made use of in panoramic exhibitions, but modified so as to allow the canvas to pass on a slightly convex floor against which it is maintained by two springs of a peculiar construction. In this way the canvas is always stretched and the production of creases or irregularities rendered impossible.

**ASTRONOMICAL PHOTOGRAPHY.**—Professor Stokes delivered a lecture before the Royal Society on Astronomical Photography, in which we find some interesting facts relating to the expedition at Granada, for the observation of the total eclipse of the sun of August 29th. On this occasion the light of the corona was much less than had been expected, which seems to demonstrate that the luminous intensity of the corona varies from year to year, as is the case for its shape. It may be asked if this effect is not due to the presence of volcanic

dust in the high regions of our own atmosphere; or if it is caused by a great variation in the luminous intensity of the corona itself. The fact is, that Mr. Huggins declares that he has been unable to obtain photographs of the sun's corona (without eclipse) since the time of the terrible volcanic eruption of Krakatoa, and since this phenomenon, superb sunsets, as we know, have been remarked in different parts of the world, which are also attributed to the volcanic dust thrown by the eruption into the elevated regions of the terrestrial atmosphere, although some scientists are not of this opinion.

**PHOTO-MECHANICAL CHROMO-LITHOGRAPHY, BY OSKAR CONSIE, IN MUNICH.**—From the art establishment of Mr. Oscar Consie, in Munich, there lies before us a colored plate, the individual colored plates of which are produced entirely by a photo-mechanical process. The original is not only reproduced with the greatest possible truth and distinctness, but the most completely worked, characteristic color effect is attained in the finest and most delicate tones: the modelling also is good, and great strength and depth in the shadows are obtained. The special excellence of Consie's process consists in the production of the color print with only nine colors; whereas, heretofore, thirteen, at least, were necessary.

By the former method the lithographer had to point the separate color plates carefully with the pen, taking thereby eight days at least; but by Consie's method he can tinge them with the brush upon a paper prepared expressly for that purpose; this takes, at most, a day and a half.

Then the plate is changed in fine points photo-mechanically, and these will appear finer or coarser, according to the gradation of the tones.

With the human hand it is impossible to obtain the distinct gradation which Mr. Consie obtains by his method. Since the photo-mechanical picture is copied upon the lithographic stone afterward, the latter is managed as usual. The color plates are produced also for the printing press.—GRUNEWALD, in the *Wochenblatt*.

A NEW PHOTOGRAPH SCHEME IN THE WAR DEPARTMENT AT PARIS.—Gen. Boulanger, Minister of War, has ordered that all civil and military employés and officials of the war office shall have their photographs taken and affixed to pocket books in which shall be inscribed the names and qualifications of the owners. These will be distributed wherever the order is given to mobilize troops, and the officials will be required to produce them whenever they present themselves at the war office, so as to prevent the ingress of strangers.

MR. ANDREW PRINGLE has made some very exhaustive and crucial tests with prints by various processes, by sulphuration, and declares those on bromide paper to have come out best of all, except carbon.

Now it seems that if clean and pure fixing solutions are used and careful washing had, that photographers have nothing to fear on the score of fading, from prints on "permanent bromide paper."

THE German photographers from whom we have letters are already preparing their exhibits for the Stuttgart Exhibition. Would it not be wise if some of our best men would also prepare some fine examples of work for Stuttgart and thus help to continue the very good feeling now existing between the artists of the Great Empire and those of the Great Republic!

WE hereby announce our readiness to receive and ship any such exhibits, in good time, and will give full particulars presently. Meanwhile, please prepare.

SOME lovely German negatives from several parties are printing now for the future embellishments of our magazine. They are real art-studies.

ORTHOCHROMATIC PLATES are again attracting much attention in England and in Germany. The editor of the *Photographic News* has just given his opinion on the value of these plates in the reproduction of landscapes. He had before him two prints representing the same subject, one of which

was printed from an orthochromatic negative, and the other from an ordinary negative; he assures us that the difference between the two results is marvellous. The impression from the orthochromatic plate is much softer and more harmonious, the distance better observed. Nevertheless, we should not be in a hurry to judge from one or two samples.

We are not told, besides, what is the nature of these plates; but Mr. W. E. Woodbury informs us that the best orthochromatic plates used in Germany are those of M. Loescher, which are suitable for rapid exposure. These plates are prepared so as to be about five times as sensitive as the ordinary commercial plates; then to make them orthochromatic, they are plunged into one of the following baths: 1st, solution of erythrosine (1 gramme in 1000 c. c. of alcohol), 10 c. c.; ammonia, 1 c. c.; water, 90 c. c.; or, 2d, saturated solution of azaline, 4 c. c.; ammonia, 1 c. c.; alcohol, 20 c. c.; and water, 75 c. c. Without the preliminary bath plunge the plates into one or the other of these preparations for a minute, then allow them to dry. The azaline bath renders the plates sensitive to the red. In using either of these preparations it is necessary to make use of yellow glass (a glass plate coated with collodion colored with aurantine).—DR. PHIPSON.

ACTION OF TOBACCO SMOKE IN THE GLASS ROOM.—The action of tobacco, that is to say of tobacco smoke, on the development of highly sensitive gelatino-bromide plates, was recently discussed at one of our societies. The question was finally reduced to this: Is it possible to smoke with impunity in the room in which are developed gelatino-bromide plates? Nobody had paid much attention to the subject, and the conclusion was reached that it was possible to smoke in the laboratory during the operation of development, without injury to the negative. It seems to us that the conclusion is premature. To begin with, the pipe must interfere with vision and the operations, without speaking of the dust which accumulates in small rooms in which there is smoking, and of the accidents that may result from segar ashes falling on a plate or into a bath of



small dimensions. In the chemical laboratory, in which we habitually smoke, many precautions are required, and these are still more necessary in the photographic laboratory.—DR. PHIPSON.

**PHOTOGRAPHIC LECTURES USED TO RAISE MONEY.**—To-day photography, as well as music, is used to procure funds, either for hospitals or for the poor, or for the artist himself. Recently, Mr. Alfred H. Burton gave a photographic lecture in London, in which he described the ravages made by the volcanic eruptions in New Zealand, illustrated by 120 lantern slides. Reserved seats two shillings, admission one shilling, as at the popular concerts.—DR. PHIPSON.

An old, old method in this country. We know of a mission church on Mt. Lebanon, Syria, built from the proceeds of such a lecture.

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### SOCIETY GOSSIP.

**THE PHOTOGRAPHIC SOCIETY OF PHILADELPHIA.**—The annual meeting of the Society was held Wednesday evening, January 5, 1887, with the President, Mr. Frederic Graff, in the chair.

The election of officers and committees for 1887, resulted as follows:

President.—Frederic Graff.

Vice-Presidents.—John G. Bullock and Joseph H. Burroughs.

Secretary.—Robert S. Redfield.

Treasurer.—S. Fisher Corlies.

Executive Committee.—Galloway C. Morris, Joseph H. Burroughs, and John G. Bullock.

Excursion Committee.—Charles Barrington, Samuel Sartain, and Frank Bement.

Committee on Membership.—Henry T. Coates, Edward W. Keene, W. A. Dripps, William L. Springs, John Bartlett, Joseph H. Burroughs, David Pepper, and Dr. H. M. Howe.

Committee on Revision of Minutes and Articles for Publication.—John C. Browne, John G. Bullock, and Robert S. Redfield.

On the announcement of his re-election as President, Mr. Graff addressed the members present at considerable length, review-

ing the progress of the year past. Among other things, he said:

“Although no very startling discoveries have been published in the photographic world during the past year, the improvements in all branches of the work have been steady and important. The use of paper negatives and films is a new departure, and with the ingenious apparatus for their ready employment, is very attractive to the amateurs, who, as a rule, prefer light weight.

“A number of new lenses have appeared during the year, the efforts of the makers being to produce such as will carry large openings, with sharpness and depth of focus, that we may be enabled to better gratify the strong desire now prevalent for accomplishing instantaneous exposures.

“With the same object, the use of the so-called detective camera has been greater than ever before, and with better results, the manufacturers of dry plates have kept pace with improved lenses, and new rapid shutters, until it has become impossible to decide in what infinitesimal fraction of a second, a picture may be obtained.

“The use of photographic processes for book and other illustrations, is growing with very great rapidity, and so general, that even our daily newspapers produce over night in a few hours, we may almost say minutes, some sort of outline that often serves at least, to make clearer the articles written, descriptive of an accident or event.

“Relief blocks, capable of being set up with letter-press, are now a necessity; in this application of photographic methods, we can turn with great pleasure to the investigations and results brought to such perfection by our fellow member Mr. Ives, and to him also is much credit due for the advances made in the practical application of orthochromatic photography, and his liberality in making these public.

“In the mechanical methods of permanent printing, we can turn with pride to the beautiful work produced daily, and so rapidly, by one of our earliest members, Mr. Gutekunst, in the production of phototype pictures. The microscopic photographs produced by our fellow member Mr. Walmsley, are wonderfully perfect in their way.

“In the manufacture of dry plates, our

widely known member, Mr. Carbutt, must be mentioned as one of the first in the country to produce, commercially, the means of enjoying our art to the fullest, and who vigorously keeps pace with all advances made in that industry.

"I do not wish it thought that I desire to ignore other of our members, who have done good work, but think we should all feel proud of those who have produced results so creditable to them, and of such advantage to the public at large."\*

The paper of the evening was read by Dr Ellerslie Wallace, Jr., on "Silver Printing on Albumenized Paper." (See page 71.)

During the discussion which followed, the Secretary stated that he had used Labarraque's solution for eliminating hypo from prints for the last two years. Pictures which had been exposed in frames during that time showing no perceptible change, the whole washing process being completed in from half an hour to an hour.

Dr. Wallace considered the action of the chlorine on the prints to be injurious, and preferred, where it was necessary, to economize time in washing, to run the prints repeatedly through a clothes-wringer into fresh changes of water. There was some danger of tearing the prints by this process, but the elimination of the hypo was very thorough.

THE PACIFIC COAST AMATEUR PHOTOGRAPHIC ASSOCIATION met on Thursday evening, January 6th.

The Secretary's report showed thirty-six active members present, besides several visitors, and the evening was one of the most pleasant of many happy hours spent in the rooms. Yet with all the good feeling there was a shadow of sadness, for one chair that was wont to be occupied by one of our most beloved members, Mr. Virgil Williams, was vacant. Taken from our midst since our last meeting by a sudden and unexpected death, our Society has been deprived of a genial friend whose kindly counsel and artistic promptings have been invaluable.

Mr. Williams was the director and mov-

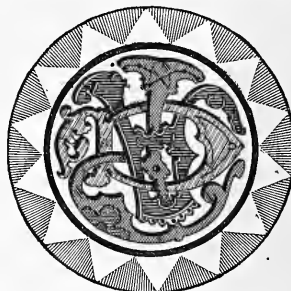
ing spirit of our school of design, and was well known both here and in the city of Boston, where for a while he had his studio, and we doubt that among our artists there was one who was more thoroughly acquainted with the history and *technique* of art in all schools of its existence. Eloquent and feeling tributes to his memory were paid by Mr. Treat, ably supplemented by Mr. Le Breton.

The feature of the evening was a lecture by Mr. H. S. Bellsmith (who is visiting this coast in the interests of the Eastman Co.) on the use of bromide paper in contact printing and in enlargements, and his concise and intelligent remarks illustrated by numerous specimens of enlargements. He also demonstrated the development of enlargements made with the apparatus of the Society during the afternoon of the day of the meeting, and also showed a large collection of negatives both stripped and paper, and prints made by same.

The next meeting (February) is to be a lantern night, and members were notified to have a good supply of *new* slides. This to show we are not asleep on the Pacific Coast.

SIDNEY M. SMITH,  
Corresponding Secretary.

## PERTAINING TO THE



Secretary's Report for the year ending December 30, 1886:

<i>Receipts.</i>	
April 13, from Treasurer . . . . .	\$100.00
July 22, for advertising space, from—	
E. & H. T. Anthony & Co. . . . .	144.00
J. C. Somerville . . . . .	72.00
	\$316.00

\* Quite a proud record for the old Society.—  
Ed. P. P.

Brought forward . . . .	\$316.00
July 22, W. G. Entrekin . . . .	72.75
W. G. Entrekin . . . . .	10.00
H. A. Hyatt . . . . .	75.00
Smith & Pattison . . . . .	75.00
Sweet, Wallach & Co. . . . .	45.00
Blair & Prince . . . . .	42.00
W. J. Bryant . . . . .	148.80
Knapp & Caldwell . . . . .	78.00
St. Louis Dry Plate Co. . . . .	49.50
L. W. Seavey . . . . .	89.70
Allen Bros. . . . .	37.50
A. M. Collins Mfg. Co. . . . .	37.50
G. Cramer . . . . .	30.00
Dr. McIntosh . . . . .	29.40
W. D. Gatchel . . . . .	29.40
M. A. Seed Dry Plate Co. . . . .	56.40
Eastman Dry Plate & Film Co. . . . .	26.25
Acme Burnisher Co. . . . .	26.25
Eagle Dry Plate Co. . . . .	26.25
Spurgeon . . . . .	78.75
Geo. Murphy . . . . .	26.25
Weber & Co. . . . .	26.25
J. E. Newcomb . . . . .	34.05
J. Rosenthal . . . . .	40.00
Benj. French & Co. . . . .	26.25
Buchanan, Smedley & Bromley . . . . .	26.25
Extra for space . . . . .	40.00
Aug. 14, from—	
Rochester Optical Co. . . . .	45.00
Malinekrodt Chemical Works . . . . .	42.00
H. Lieber & Co. . . . .	29.40
Oct. 12, from W. H. Walmsley & Co. . . . .	26.25
Dec. 30, from Treasurer . . . . .	23.50
	<hr/>
	\$1,765.40

*Disbursements.*

Jan. 13, Postage stamps . . . .	\$1.00
" 23, Letter box . . . . .	70
" 29, Postage stamps . . . . .	1.00
Feb. 19, Postage Stamps . . . . .	1.00
" 19, Telegram . . . . .	25
" 25, Paper holders . . . . .	45
March 19, Twine . . . . .	20
" 25, Postage stamps . . . . .	3.50
" 25, Telegram . . . . .	25
" 25, Telegram . . . . .	25
April 7, Postage stamps . . . . .	1.00
" 13, Postage stamps . . . . .	1.00
" 13, Printing . . . . .	54.50
May 2, 200 mailing tubes . . . . .	5.00
" 11, Postage stamps . . . . .	1.00
" 21, Postage stamps . . . . .	1.00
" 21, Express electros for journals . . . . .	2.29
June 2, Engraving diagram . . . . .	15.00
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	\$89.30

Brought forward . . . . .	\$89.30
June 2, Electros . . . . .	8.75
" 18, Telegram . . . . .	25
" 26, Paid G. M. Carlisle . . . . .	1,485.35
" 28, Paid G. M. Carlisle, Entrekin donation . . . . .	10.00
July 1, Express on tin box . . . . .	1.65
" 2, Postage stamps . . . . .	1.50
" 15, Express official papers . . . . .	45
Aug. 14, Paid G. M. Carlisle, . . . . .	116.40
Sept. 1, Postage stamps . . . . .	1.00
" 1, Copy of essays . . . . .	15.00
Oct. 12, Paid G. M. Carlisle . . . . .	26.25
Dec. 30, Drawing diagrams . . . . .	10.00
	<hr/>
	\$1,765.40

Due the Association from Hiram J. Thompson, Chicago . . . . . \$26.25

H. McMICHAEL,  
Secretary.

MEETING OF THE EXECUTIVE COMMITTEE.

From daily letters sent us by our trio of Chicago correspondents during the sessions, and from the report of Mr. G. M. Carlisle, Secretary, we learn that a laborious meeting of the Executive Committee of the P. A. of A. was held at the Palmer House, Chicago, during January 15th, 16th, 17th, and 18th. It was decided to hold the next Convention in August, but no date was fixed. It was thought that the duties of local Secretary would not be onerous this year, as the Photo-merchant's Board of Trade is to meet in Chicago next month, at which time the rental of space can be attended to. Mr. C. Gentile was elected Local Secretary, at a salary of \$250.

The committee appointed at the last Convention to revise the Constitution and obtain a charter reported having obtained the latter under the laws of the State of Illinois, but no revision of the Constitution was agreed upon. Messrs. W. H. Potter (in place of Gayton A. Douglass, resigned) Charles Gentile, and E. L. Brand are the trustees *pro tempore*. After a great deal of discussion, it was

*Resolved*, That the prizes for exhibits of photographic work shall be awarded by a committee of five members of the Association, to be appointed by the Executive Committee.

PRIZES FOR EXHIBITS FROM FOREIGN COUNTRIES.

For best exhibit of portrait photography from foreign countries. One gold medal.

For best foreign exhibit of landscape or marine views. One silver medal.

FOR EXHIBITS OF MEMBERS OF THE PHOTOGRAPHERS' ASSOCIATION OF AMERICA, RESIDENT OF THE UNITED STATES AND CANADA :

Class A.—For collection of portrait photography of any size (cabinet pictures not competing for Class C, may be included in exhibits competing in this class). One grand prize, diamond badge, for the best exhibit. Four gold medals for superiority. Four silver medals for excellence.

Class B.—For collection of large photographs; contact prints not less than twenty-two inches long; print not to be vignettted. One gold medal for superiority. One silver medal for excellence.

Class C.—For collection of twenty-four cabinets. Ten bronze medals for merit. Parties competing for this class cannot compete in any other class.

Class D.—Compositions or genre pictures of any size. One gold medal for superiority. One silver medal for excellence.

Class E.—Landscapes. One gold medal for superiority. One silver medal for excellence.

Class F.—Best marine views. Class G.—Best interiors. Class H.—Best instantaneous views. Class I.—Best architectural photography. Class J.—Best photo-transparencies. Class K.—Photography applied to science. One silver medal for each.

The grand prize in Class A is open to all members of the Photographers' Association of America.

Winners of gold medals at the Convention of 1886 are eligible only to gold medals or the grand prize this year.

Parties competing for the bronze medals of merit in Class C are debarred from competition in any other class.

RULES TO BE OBSERVED BY COMPETITORS FOR ASSOCIATION PRIZES.

1. All competing exhibits must be from negatives made since the St. Louis Convention, June 28, 1886.

2. Any person desiring to compete for prizes must remit dues to the Treasurer, G. M. Carlisle, Providence, R. I., before making entries.

Members annual dues two dollars.

Non-members initiation fee and dues three dollars.

The Treasurer will furnish the necessary blanks for entries, which must be filled and forwarded to C. Gentile, local Secretary, P. A. of A., Chicago, Illinois.

All entries to be in the hands of local Secretary fifteen days previous to the opening of the Convention.

All competing exhibits must be without frame or glass.

No exhibit will be received unless the freight or express is prepaid.

*Resolved*, The space allowed to any exhibit shall not exceed twenty-five linear feet—each space allotted shall be properly filled with pictures subject to the rules, and under control of the local Secretary.

*Resolved*, That the exhibition of photographs connected with our Convention be considered an Art Exhibition pure and simple, and in order not to detract from this standard, be it

*Resolved*, That no sign of any description shall be allowed to be placed in the halls devoted to the display of photographs, except one card to every exhibit, said card not to exceed 7 x 12 inches in size, and to contain only name and address of photographer, whose work it represents.

*Resolved*, That any picture may have its title or subject neatly inscribed thereon, but nothing of an advertising nature will be permitted.

*Resolved*, That the Executive Committee shall be charged with the duty of removing all objectionable features. Carried.

*Resolved*, That one Silver Medal shall be awarded for the best improvement in photographic apparatus or accessories produced since the last Convention, on exhibition in the Stock Dealers' Department.

This prize to be awarded by a general vote of the Association, in Thursday morning session. The highest number of votes wins the prize.

Competitors for this prize are requested to file their entries for competition with the

local Secretary of the Photographers' Association of America, ten days previous to opening of Convention.

A communication was read from W. H. Clark, of St. Louis, offering reasons why C. Gentile, a journalist, not a photographer, should not be appointed local Secretary. The same was read, and by vote was laid upon the table.

*Committees Appointed.*—Treasurer Carlisle was authorized to obtain printed official stationery, and the Association badges.

*Committee on obtaining Medals.*—W. H. Potter, H. McMichael, W. V. Ranger.

*Committee on Foreign Exhibits.*—Messrs. E. & H. T. Anthony & Co., New York; Scovill Manufacturing Co., New York (since declined); G. Gennert, New York; C. Gentile, Chicago, Ill.

*Committee on Progress on Photography.*—Dr J. Nicol, Chicago, Ill.; J. Trail Taylor, London, England; Dr. Herman Vogel, Berlin, Prussia; Dr. Eder, Vienna, Austria; Leon Vidal, Paris, France; Professor Borlinetto.

*Resolved.* During the business session the reading a paper or delivery of a lecture shall not exceed fifteen minutes. Passed.

*Committee on Hotel Arrangements.*—C. Gentile, of Chicago.

*Committee on Railroad Rates.*—W. H. Potter, in place of Gayton A. Douglass, Chicago, Ill., resigned.

A cordial invitation is extended by the Committee to all foreigners connected in any way with Photography, to attend the Eighth Annual Convention of the P. A. of A., at Chicago, Illinois, U. S. A.

The date of holding the Convention will be announced through the journals at the earliest possible day.

Rules for officers and committees were passed, and a programme for the Convention made, but as they may be materially changed we omit them. We shall keep our readers informed on all that concerns them.

#### THE CHICAGO CONVENTION.

THE rolling of the ball is now well started toward the Chicago Convention, and it is the determination of the enthusiastic Presi-

dent and the Executive Committee to do all in their power to make it a grand success.

There is no man in the craft who holds a higher place in the hearts and in the esteem of his colaborers than Gustav Cramer, the paragon of good photographers and the noble-hearted, generous man. We heartily wish him comfort and pleasure in the hard work he has assumed for the good of our art. If any one doubts his goodness of purpose, they need only to read the letter which follows in order to dissipate all such doubts:

St. Louis, January 21, 1887.

Editor PHILADELPHIA PHOTOGRAPHER,

DEAR SIR: You will have received by this time the minutes of our Executive Committee's meeting, and noticed that we have tried our best to meet the demands of the fraternity in making the awards of prizes to suit all classes.

The prize in Class C is intended to give those photographers a chance to win a medal of merit who have not the means and facilities which their more fortunately situated brethren enjoy. In cabinet cards they can all compete with good prospects, and our arrangements are intended to prevent photographers of prominence from entering in this class, and to induce them to strike higher. We have given this matter careful and exhaustive consideration and nothing better suggested itself. All other plans presented unsurmountable difficulties upon going into their details.

In all the arrangements we have made, it has been our sole aim to make the next Convention a success, and we hope that all the journals and the fraternity at large will join in our efforts.

Let all elements unite for the one great purpose: "the advancement of photography and the progress of the Photographers' Association of America." Yours truly,

G. CRAMER,  
President P. A. of A.

There is one thing to be regretted, however, and we hear it from many, that care was not taken by the Executive Committee to secure the efficient services of Mr. H. McMichael, who has for the past two years proven himself such an excellent Secretary. Both he and his work will be missed

## DEVELOPMENT OF LANTERN SLIDES WITH PYRO.\*

BY F. C. BEACH.

CONSIDERABLE progress has been made in the development of lantern slides lately with the pyro developer, which seems to prove that it is possible to make one developer answer for negatives and positives, and dispenses altogether with the necessity of the iron developer.

From a series of experiments I recently made on Carbutt's A plates, I learned that it was only necessary to use a weak developer to obtain excellent slides of the proper density. I placed the negatives at a distance of twenty-four inches from a Carbutt lamp, and exposed (the sensitive plate being in contact with the negative in a frame) from fifteen to forty-seconds, according to the density of the negative. I developed four plates at a time in one  $6\frac{1}{2} \times 8\frac{1}{2}$  tray, and used the ordinary Beach developer, as follows:

Pyro Solution . . .	40 minims.
Potash Solution . . .	30 "
Water . . . . .	3 ounces.

The development proceeds very slowly, which is desirable, and takes about ten to fifteen minutes, and it is advisable to make the blacks much darker than they should be, otherwise they will fix out too flat and thin in the hypo solution. The developer should be used fresh each time. I obtain very clear high lights, without the use of any after-clearing solution, although I have no doubt it is desirable to employ it. If the developer stands too long, or is used a second or third time, it is liable to give the high lights a very slight yellow tinge. I may say several members of this Society are developing slides with pyro very successfully, and their experience, together with my own, and that which I learn has been tried elsewhere, leads me to the conclusion that it is going to be the simplest and easiest method for making lantern slides. If amateurs knew they could use the same negative developer for lantern slides, more of the latter would be made. I do not object to the color of potash slides; if the exposure is nearly correct, it will be

\* Read before the Society of Amateur Photographers of New York.

a dark brown. It is the sulphite of soda and sulphurous acid in the developer which prevents the pyro from staining the plate, and they thus play a most important part.

If the plate is underexposed you are not limited as with iron, but can secure a passable slide by the addition of more potash.

Then again the density of the slide is easily regulated; if you wish it to be very thin, suitable for a weak oil lantern, simply decrease by one-half the amount of pyro solution.

If you wish a purple tone, develop with only ten minims of the pyro solution to three ounces of water; and, after fixing and washing thoroughly, slightly intensify with bichloride of mercury and cyanide of silver solution (or Monckhoven's intensifier).

To obtain a brown tone, according to Mr. Alvey A. Adee, add three or four drops of the following solution to the developer:

Citrate of Soda . . .	50 grains.
Water . . . . .	1 ounce.

and slightly overexpose.

## THE AUXILIARY ILLUMINATOR.

A contrivance for the introduction of diffused light into the photographic camera during the exposure.

Since the year 1870, the matter of after and previous lighting has occupied many an investigator, yet since Scotellari, in 1876, published his experiment, the gelatine dry plates have come into use, and since then it has been deemed unnecessary to make use of his experiment, although the results at that time were by no means unfavorable. To those who wish to make a study of this matter, I recommend the instruction books of Professors H. W. Vogel and Joseph M. Eder, who have opened up a rich store of knowledge on the subject. In the course of the past winter the idea occurred to me to project diffused light upon the sensitive plate in the camera during the exposure, so as to support the chemically active rays entering the camera through the objective. I tried first to turn diffused light upon the upper part of the plate in the camera; since this part of the plate often shows but little detail I sought to aid it. The experiment

succeeded, and I improved upon it, so that aid given to the whole plate was successful, and that without the negatives showing any fogs, whereas, by former methods the negative was often covered with fog.

In constructing the apparatus care must be taken to keep off all direct light from the plate. This is done by means of a light-breaker. To find out the most suitable construction for this, much pains and experiment are necessary; but since these efforts will be successful in the end it is not necessary to speak further of the matter, especially as it is apparent that the plates lighted by the auxiliary illuminator are much better worked—so the process may be decidedly recommended. The auxiliary illuminator can be attached to the present camera front and is constructed in the following manner:

Slits are cut in the front above and below the lens one and a half centimetres in width. These slits are arranged so as to run obliquely; there are to be smaller slits also in the sides. Thus the objective is encircled in a square of openings, through which light can penetrate into the camera. In this way, also, the light can be prevented from entering the camera by fastening a movable screen in front of the lens board. When we wish to allow the light to enter the screen can be pushed up and held in position by a spring. When enough light has entered, by pressing the spring the screen falls back to its former place. If direct light falls upon the plate fogging ensues, therefore, it is necessary to use a light-breaker which may be made of black tin (ferrotype plate). This is cut out square in the middle so as to afford the objective free play, it is bent slightly toward the inside at top and bottom and fastened at the four corners with long screws to which the tin plate is brought more or less near, so that the light striking upon it can be made weaker or stronger as desired. Moreover, it is possible by a correspondingly oblique position of the tin to supply a part of the plate with more light, which, under the circumstances is also of importance. The light-breaker distributes the light to the sides of the camera, while the four-cornered segments permit the dispersed light to join itself to the light cone

falling through the objective. The experiments performed by myself as well as by Mr. H. Haberlandt and the photographic society in this place have been published in the following words: for portraits with dry plates this auxiliary illuminator is peculiarly suitable for exposures of three or more seconds, but in instantaneous pictures, though noticeable, the advantage is less.

During the winter days we have often found longer exposures necessary, especially with larger pictures, and it is, therefore, advantageous to be able to produce with the same exposing much better negatives. In the use of the collodion process for reproducing purposes the auxiliary lighting is of great service, for thereby the exposure in clear weather is reduced one-half, and in gloomy weather one-third. The Photographic Society in Berlin took enlarged pictures from an oil painting in foggy weather, and lighted without the apparatus fifteen minutes and with it ten minutes. Although the latter picture was exposed five minutes less, yet it was quite as perfect as the former and free from fog.

We have now a means at hand to shorten the exposure with weak-light objectives by the use of this contrivance.

Photographers who are interested in the apparatus patented by me may communicate with the well-known firm of L. G. Kleffel & Son, Berlin, S. W. Lindenstrasse 69.—EUGENE HIMLY in the *Wochenblatt*.

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### PHOTOGRAPHIC TRACINGS FOR PRINTING UPON STONE.

For this purpose, according to communications from the *Freien Künste*, one should lay a correspondingly large piece of gelatine paper upon the photograph to be reproduced, and scratch in the contour with a sharp steel point. After withdrawing the gelatine sheet, the other side, upon which the lines that were scratched in appear rather rough and prominent, should be rubbed with fine pulverized red chalk. This fills in the crevices; whatever remains of the red chalk can be wiped off with a brush.

Then the transfer is laid upon the stone, and when this is drawn through the press,

a good positive red chalk printing transfer is obtained. The transferring can also be done with a polishing steel, or any other suitable instrument. Should the transfer appear reversed or negative upon the paper, then a sheet of white paper can be laid upon the stone and drawn through. The inside or deeply scratched side of the gelatine leaf can be rubbed with chalk, whereby the transfer would appear upon the stone the same as the negative, but the lines will be printed less sharply. If gelatine is not convenient, use caoutchouc to rub off the greasiness adhering to the photograph; the contours can then be drawn over with Chinese ink to which a smaller quantity of ox-gall, sugar, and gum is added. A sheet of wet paper is laid upon the photograph, and the whole drawn through the press.

If in particular cases one wishes to have the transfer unreversed upon the stone, then the direct print of the photograph is used as the overprint. Afterward the prepared Chinese ink should be carefully washed off, then it remains in an uninjured condition.

### EXPOSURE.

BY C. C. VEVERS.

THE focus obtained, the cap must be replaced firmly on the lens hood, the focussing screen is next folded back, and the dark slide inserted in its place, the camera back and slide are covered with the focussing cloth, and the shutter nearest the lens gently drawn out as far as it will go, at the same time holding the slide in its place with the left hand.

It is impossible to give the exact time of exposure required, as it depends entirely upon the intensity of the light, the rapidity of the plates and lens used, the size of the stop, the color of the surroundings, and the time of the year. For a well-lighted landscape, using ordinary plates, landscape lens with medium stop, an exposure of from two to four seconds may be given. On a hot summer's day the atmosphere is often hazy and highly charged with non-actinic light,

while after, or even during, a shower of rain the atmosphere is generally clear and bright.

The time of day has much to do with the exposure required: thus, a view requiring only a second or two at noon must have almost as many minutes after sunset. Then, again, the openness of the view must be taken into consideration: a view of the sea may require only a second, or perhaps instantaneous exposure, while for a landscape overhung with foliage, or a street under the same conditions, it will be necessary to give an exposure of thirty seconds to three minutes. Water, snow, and cloud pictures only require a minimum of time to act upon the sensitive plate. The color of the object also makes a difference: whites and blues are rapid; red, brown, green, and yellow are more or less non-actinic.

Before the slide has been removed from the camera, a memorandum of the exposure and other details should be entered in the note-book, which is divided into spaces for the purpose. As an example, the following entry is extracted from an amateur's note-book:

Date.	Time.	No. of Plate.	Subject.	Exposure.
14/10/86	2.10 P. M.	3	Bolton Abbey.	5 secs.

Make of Plate.	Stop.	Remarks.
"Ilford Ordinary."	No. 8.	Faint sunlight: Exposure correct.

—*Practical Amateur Photography.*

CLUB RATE (without premium).—THE PHILADELPHIA PHOTOGRAPHER and the weekly issue of the *Photographic Times and American Photographer*, to one address, for \$6.50. Twenty-fourth year of THE PHILADELPHIA PHOTOGRAPHER, handsomely illustrated.



## Editor's Table.

WE fear we have omitted several intended courtesies in this department of this issue. Two large envelopes of MSS. went astray in the mails, and have never turned up. A series of peculations by a clerk have just been discovered in the New York Post-Office, and it is possible our bulky envelopes were among those lost. At any rate, much of this department has had to be rewritten from memory. If any have been neglected, please inform us and we will make it right.

A NEW edition (3000 copies) of *The American Annual of Photography and Photographic Times Almanac* is announced to be ready about February 15th. Paper cover, 50 cents. Muslin bound, \$1.00; and 10 cents additional for postage.

MR. WILL H. ALLEN, of ALLEN BRO.'S, Detroit, Mich., called upon us January 20th. He had been East attending to the growing interests of the Suter lens.

MR. J. H. WALLACH, of Messrs. SWEET, WALLACH & Co., Chicago, likewise favored us with a visit, and a pleasant chat upon Chicago matters. He was on a "diversion trip" with his honored father.

QUESTIONS FROM THE CRAFT.—Thanks to all who have so promptly and so fully answered these. The "Reply" column will be opened in our next issue.

CAUTION.—The Stanley plates are so much more sensitive than most others that photographers must be extremely careful that their dark-room is really dark, and that no light falls upon them directly, even through non-actinic glass or paper. The above is published for the benefit of our readers by request of Messrs. E. & H. T. ANTHONY & Co., the agents.

OUR BIG OFFER.—Read the advertisement *now*, lest it be too late, and then *this*:

Books are the negative pictures of thought; and the more sensitive the mind that receives their images, the more nicely the finest lines are

reproduced.—OLIVER WENDELL HOLMES, *Poet, Philosopher, and Photographer of old.*

THE second (February) number of *Scribner's Magazine* opens with an article of general and scholarly interest, "The Likenesses of Julius Cæsar," by Mr. John C. Ropes, the well-known writer of military history, which is superbly illustrated with eighteen portraits, reproductions of photographs from statues. These photographs are from the absolutely unique and complete collection of the likenesses of Cæsar, owned by Mr. Ropes, and the completion of which he has made his especial study for many years. One of these portraits, engraved by W. B. Closson, forms a striking frontispiece for the number. Photographers will find many a good lesson here.

AN ELECTRIC LIGHT FOR THE OPTICAL LANTERN.—The Photographic Society of Philadelphia held a special meeting recently at the rooms of L. J. MARCY, No. 1604 Chestnut St., Phila., to examine his new electric light apparatus for the optical lantern. The current was obtained by running a wire from the street circuits used to supply the public lamps. The novelty and usefulness of Mr. Marcy's adaptation of the light for this purpose consist in the means employed to secure steadiness in the "feed" of the carbons. The lower carbon is so arranged as to continually present the burning point at the same elevation, and the point of the upper carbon is held slightly in the rear of the lower, so that, practically, all the light produced is available at the side nearest the lens. By a simple adjustment, the operator is able to easily control the length of the arc. A large number of slides were projected on the screen. It was found that slides which were too "dense" to be shown with good results with either oil or lime light were brought out with great clearness.

WE have news of the death of the well-known German photographic writer, C. QUIDDE, at Berlin, on the 15th of December, after a very brief illness. The deceased was widely known throughout his life, having a practical and theoretical knowledge of the whole art, and being particularly active also as an author.

Many American and most German photographers are acquainted with him from reading, in the *Photographische Mittheilungen*, his report of the Society for Advancement of Photography, of which Society he was for many years first Director. His last great work was the "Report of the Advancement of Photography, from October, 1885, to 1886," which appeared in the recently published German Calendar, 1887.

In the year 1870-71 the deceased was with the editor of the *Zeitung* as photographer of the field-photography detachment before Strassburg, and in the further course of the campaign he was efficient in preparing landscape pictures for the Third Army Corps in and around Versailles. Ten years later, on September 2, 1880, Quide officiated as delegate of the Society for the Advancement of Photography in Frankfort-on-the-Main.

The members of the Thirteenth Travelling Convention of the German Photographic Society also highly esteemed the deceased. The Society lost in him a zealous member whom they will always hold in faithful remembrance.

The editors of the *Deutscher Photographen-Zeitung* have put a great deal of useful matter in a small space in the *Photographen-Kalender* for 1887. Besides the usual tables of weights and measures, standard formulæ, etc., it contains a number of new formulæ and processes of the past year, interleaved for notes; and a list of all photographic societies and periodicals, giving a full list of officers and members of all the German societies. It is embellished by an instantaneous orthochromatic picture by OBERNETTER; and a zincographic print by Dr. BRUNO MEYER'S process.

We have received from Messrs. E. & H. T. ANTHONY & Co. the bound volume of the *Bulletin* for 1886. Its twenty-four numbers are full of good things, and altogether make a handsome whole. From SCOVILL MANUFACTURING Co. the last year's *Photographic Times*, bound in two splendid volumes, cloth gilt—a fine addition to our library.

THE BLAIR CAMERA Co. has opened a new agency in Philadelphia, in charge of Mr. GEO. WOLF, at 819 Arch St. The Company is constantly spreading out, and now its excellent apparatus can be seen at the agency in New York, Philadelphia, Cincinnati, and other cities, as well as at home in Boston. We congratulate them upon their evident growth.

MR. GEO. MURPHY writes us that the Eagle Stockhouse, well known to many of our readers, will shortly remove from 250 Mercer Street to larger rooms at 2 Bond Street. We are glad to see this witness to his successful enterprise.

WE have received from Messrs. WILSON, HOOD & Co., Philadelphia, a most convenient little pocket catalogue of "every-day supplies." Its pamphlet pages hold in handy form much of use, and it is a decided improvement on many of the immense volumes issued, and much more likely to prove a companion to the working photographer.

DR. DRINKWATER, F.R.S. of the Edinburgh School of Medicine, writes us: "*Mosaics* is at hand. It is, without doubt, the best photographic annual I have ever seen."

MR. S. T. BLESSING, of New Orleans, sends us his new 80-page catalogue. Mr. BLESSING is one of the oldest and most experienced stock-dealers in the country, and we need scarcely commend him to our Southern and Western friends, to whom he has been long and favorably known.

PICTURES RECEIVED.—FROM Mr. HENRY BUTLER, Vermillion, Dakota, whose fine work is already known to our readers, we have an extraordinary moonlight view. It was taken at Vermillion, January 10, 1887, with a two hours' exposure, from nine to eleven. It shows detail in the road, trees, fields, and distant houses that make it up, which could not be perceived by the eye. This and its clear sharpness, and preservation of the ghostly look of moonlight, make the picture a remarkable one. It was on a Cramer lightning plate, sal soda developer; No. 2 Darlot hemispherical wide-angle lens, with next to smallest stop. Mr. BUTLER also sends us some very excellent portrait work. From Mr. J. A. PUGH, of Macon, Ga., come two of the best horse-race pictures we have ever seen—start and finish. They preserve the character of the scene, its general effect, and are not merely silhouettes or scientific curiosities, but, on the contrary, actual pictures. Mr. A. C. AUSTIN, Nashua, N. H., sends us a very good "Rembrandt" portrait. Mr. W. H. PARTRIDGE, of Boston, Mass., dropped in on us on his way back from Alaska, and left us some very interesting pictures of that country—some of them taken by the lingering Arctic sunlight at 10 p. m.





E. WELLER, LA PORTE, IND.

PHOTO-GRAVURE CO. N. Y.

"WE ARE READY."

THE

# Philadelphia Photographer.

EDITED BY EDWARD L. WILSON.

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No. 292.

## TAKE YOUR PAY IN ADVANCE.

BY W. J. BAKER.

THERE is a certain attitude of the public toward photography which, in the course of almost thirty years' practice of the art, I have frequently noticed, and which stirs my indignation as much now as it did at first. The following actual correspondence will illustrate:

W—D, N. Y., December 6, 1886.

MR. ———,

DEAR SIR: My children think the proofs you sent me frightful. We leave in a few days for California, to be gone some months, and I cannot sit again.

You may return the \$5 to me.

Address, Mrs. ———.

B—O, N. Y., December 8, 1886.

MRS. ———,

DEAR MADAM: Your favor of the 6th received. We do not make a practice of returning money. The proofs do not always favorably represent the final result. As you are going away, we will so far depart from our custom as to finish one photo, and send you. If you are pleased, we will finish the others; if you are not, we will try to make some mutually satisfactory arrangement.

Respectfully yours,  
—————

W—D, N. Y., December 9, 1886.

MR. ———:

The trouble with the pictures is not your fault, and I don't think you can do anything to help it. The mouth is bad—I suppose it

is my mouth; and then I trusted the arrangement of my hair to a friend, and she did it differently from what I usually wear it. As you don't return money, some other member of my family will come and sit.

Yours,

MRS. ———.

Much comment is superfluous. The demand to have the money paid back when she knew all the time, and in the second letter candidly acknowledged, that the fault was entirely her own, and the persistency to have the money applied to some other member of her family, show how insignificant the labors of the photographer seemed to the lady, who is wealthy, and as kindly, polite, and intelligent as most of our patrons from the "better classes" are.

She is not especially to blame. So long as we cheapen ourselves before the public, the public will hold us cheaply.

What remedy do I propose? All the remedy that there is at present, has in this case been applied. When the "other member of her family" comes, we will try politely to inform said member that part only of \$5 is applicable, the remainder having been already earned.

Sometimes we don't stand in as advantageous a position.

A young lady of well-known family comes by appointment to sit; when all is ready, on being brought to book, "Oh, Mr. —, I haven't got a cent with me; I forgot all about your pay in advance, but my friend here, Mamie, will lend me a dollar; that is

all she has; that will do, won't it? and I will pay the rest when I come for the proof.

On the morrow, when the proof is ready, servant comes, who knows nothing about the balance due. Next day, an aunt calls. "Oh, Mr. —, we are perfectly delighted with Clara's proof, and she wants a dozen; when can you give us some? Can't you have two or three to-morrow?—just one would do; Clara wants one to send away, and she wants them finished up just the very best you can, because they are all to give to her friends, you know; and Clara expects to go away soon, etc."

When a breathing place is arrived at, the aunt is politely told that we are sorry we cannot expedite matters, but the day after to-morrow, provided the weather is fine, is the soonest possible that any prints can be delivered.

The day after to-morrow Mamie calls. "Clara has such a bad cold she could not come, but she wanted me to get some for her. Three! oh, that will do very nicely. Yes, I think Clara will like them; don't you think they are good?"

So the dozen are finished and pigeon-holed. In about ten days after, there is a rush up stairs, and a swish of skirts and a gabble in the hall. Enter five young ladies, Clara at the head.

"Oh! Mr. —, those pictures you sent are horrid; they are not a bit like me; and John said that they were not well finished, like your work generally is. I guess you must have been in a hurry. Have you got the others ready? Yes? Here they are, girls; do you like them?"

Chorus—"Oh, no! Don't take them, Clara. Why don't you sit again? Just look at that nose, and the dress; why didn't you wear your pink party dress? You have such lovely neck and shoulders, Clara."

Clara, aside: "Well, I don't believe I will take them, girls." Then to proprietor: "I haven't any money to-night, Mr. —, but I will come in again and see you about them."

Then swish and gabble down the stairs. This was three months ago, and the pictures are with us yet. Manifestly a dollar back-ground is not appropriate to this sitting.

Another young woman makes a deposit

of \$2. Calls in regular order of days and gets her dozen of a careless subordinate, who does not notice the "Due, \$—" on the envelope; neither does the young woman notice, and, passing out, is lost to sight, but remains to experience dear.

These and many other forms of dead-beating bring us again to the initial proposition, *take your pay in advance.*

## ORTHOCHROMATIC PHOTOGRAPHY.\*

BY J. B. E. WELLINGTON.

ORTHOCHROMATIC photography, although not new, is at the present time receiving a large amount of attention both by dry-plate makers and photographers. It is a curious fact that a discovery to render the yellow lighter than the blues was not taken up with more zeal at the time of its discovery, and that it should have laid semi-dormant for some years until a commercial firm takes to supplying the public, which starts it into life again. I am referring only to England, as on the Continent they have employed it for some years, but we English are always somewhat behindhand in taking up a new discovery.

I am not going to discuss who is the legitimate claimant of producing orthochromatic effect in photography; but it is my intention this evening to give you the results of my experiments as far as I have gone (there is nothing original in the chemical I employ, it being erythrosin, and that was discovered years back), and to place in your hands a really good orthochromatic formula, but with one drawback—they will not keep many days.

The formulæ which have been published, compounded with eosine and ammonia, into which dry plates are to be dipped, have in my hands proved useless, and I believe others have found the same. One of my experiments shows me that chloride of silver, dissolved in ammonia with eosine and used as a bath, gives orthochromatic effect, and I should imagine that if a plate is made containing chloride of silver, and then

\* A communication to the London and Provincial Photographic Association.

bathed in a solution of ammonia and eosine, it ought to answer; probably this may account for the failures of those using the ammonia-eosine bath with ordinary plates. After various experiments with different compounds with eosine or erythrosin, I found that carbonate of silver, dissolved in excess of carbonate of ammonia and mixed with the erythrosin, gave me the best effect.

The orthochromatic effect in a plate is due not to eosine or any other stain being an optical sensitizer, as some state, because you may stain the film as much as you please, still the yellows will refuse to impress themselves upon the film; but I believe it is due more to a chemical change, which is produced by having free silver present as well as a new compound formed with the erythrosin.

Although I discovered the above (*i. e.*, the use of silver carbonate with eosine) quite independent of anything that had been published, I see that I have been somewhat forestalled in the publication of the formula, as last week in the *Photographic News* appeared a formula with ammonia, silver, and eosine, by Vogel, and, I think, the week previous another formula containing fluoride of silver, carbonate of ammonia, and eosine, which practically amounts to the same as I have given above. Mr. Hastings will bear me out in what I say, as I confided my formula to him some four or five weeks ago. However, I need hardly trouble you with all this.

After trying various proportions, I find the following to work fairly well:

Silver Nitrate . . .	20 grains.
Ammonia Carbonate . . .	90 "
Water, Distilled . . .	16 ounces.
Erythrosin (2.100) . . .	10 drachms. °

The plates are placed in this for two minutes. A rinse in distilled water gives less chance of stains, and then placed in a rack to dry. Let me here state that if they are used in the moist condition the orthochromatic effect is practically *nil*; they must be used quite dry. By this treatment the plate is rendered three times more sensitive.

I must insist upon the necessity of using only ruby light, the plates having now be-

come so sensitive to yellow that the greatest precaution must be taken in handling them.

My chief reason in not giving you this formula before was the great difficulty of developing the plates free from fog; this I am glad to say I have now overcome. I pass round a plate half of which is quite free from fog. This was got rid of by soaking the exposed plate before developing in the following:

Potassium Bromide . . .	120 grains.
Ammonia . . . . .	$\frac{1}{2}$ ounce.
Water . . . . .	12 ounces.

Do not allow to remain more than thirty seconds, well rinse under the tap, and proceed to develop with any of the usual developers—ammonia, potash, or ferrous oxalate.

If there be much blue in the object to be copied, a yellow screen must be used if exposure is to be made by daylight, although by gas or lamplight it is quite unnecessary. The best effect is always secured by gaslight exposure.

A very good substitute for colored glass is to color a collodion film and strip it from glass. The glass should be rubbed over with talc or a solution of wax in ether, and well polished off, and coated with collodion containing methyl-orange. The dried film should appear decidedly orange. The stripped film can then be gummed to the cap of lens, having cut out the centre first, and used preferably behind the lens.

The carbonate of silver and erythrosin may be mixed with an emulsion, but requires great care. It should be mixed at as low a temperature as possible, and the plates used as soon as they are dry, as their life is very short. The orthochromatic effect is very marked, and the speed increased about ten times. If anyone is desirous of trying this, I give the following:

Emulsion (containing, say, 200 grains silver . . .	10 ounces.
Silver Nitrate . . . . .	10 grains.
Ammonium Carbonate . . . . .	45 "
Erythrosin (2.1000) . . . . .	5 drachms.

Before development they must be treated with the ammonia and bromide.

Very fine results can be obtained from collodion emulsion—in fact, the results far

surpass gelatine, and can be used by daylight without the necessity of employing a yellow screen at all, but, alas! like gelatine, do not appear to keep any better.

The bath for a collodion emulsion plate is best made as follows :

Silver Nitrate . . . .	10 grains.
Ammonium Carbonate . . . .	45 "
Water . . . . .	2 drachms.
Spirit, Methylated . . . .	8 ounces.
Erythrosin (2.1000) . . . .	5 drachms.

Dissolve the silver in a test-tube by heat in two drachms of water, and add the carbonate of ammonia, bit by bit, till all dissolved. Add the spirit gradually to the hot solution, and finally the erythrosin. Place the dried collodion plate in this solution for two minutes, and dry ; the plate, before development, to be treated with the ammonia and bromide, and developed by ferrous oxalate, three to one, to each ounce of which add three grains of bromide.

If mixed with the emulsion, it begins to fog at the end of three days, so it is better to dip the plates as required. The exposure is only four times more than a fairly ordinary rapid gelatine plate by daylight, and by gaslight they are about equal.

The action of the erythrosin silver compound renders the collodion film exceedingly tough, very much like an alumed gelatine film, and is very difficult to scrub off the glass afterward.

I must now leave you to try for yourselves all I have stated, and trust some of our members will make further experiments to produce something better and more lasting than what I have done.

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## WINTER WORK.

BY C. BRANGWIN BARNES.

Now that we are fairly in the midst of the dull, dark days of winter, when sitters are few and the printing proceeds but slowly ; when the outgoings do not decrease in nearly a proportionate ratio to the incomings ; now is the time for the photographer, be he employer or employé, master or man, to look around him and prepare for the bright days to come. And not only to prepare for the coming season, but to do those

things which he has, perforce, left undone during the season passed. There are the negatives of the spring and summer of 1886 to store away in safety, and in a manner which will insure any individual one of them being easily traced and found, in the event of an extra order ; there are copies and enlargements to be made ; and there are apparatus and accessories to be seen to and repaired. The lens, being *primâ facie* the chief implement in the hands of the follower of the photographic profession, deserves first notice ; it can now be seen to, not that the lens itself requires much seeing to, but the stops are part and parcel of the lens, and the wear and tear of a single season's work is oftentimes sufficient to wear away much of the black covering with which they are coated, and so cause a certain amount of light to be reflected on the plate. These may be re-blacked, either by coating them carefully with Bates's black, or by one of the numerous processes technically known as lacquering or japanning, which is generally effected by washing or brushing over the articles requiring blacking with a hot metallic solution, the component parts of which can be obtained from almost any old *Photographic News Almanac*. Where a cap is used to the lens, the renewing of the inner band of felt may be attended with advantage, and the instantaneous shutter may not be amiss for a little looking to. Then comes the camera itself, which should now be thoroughly overhauled and made perfectly light-tight, and its interior, if necessary, re-blacked. Dark slides, too, should now be thoroughly and carefully examined, and any defects made good. The dark-room should be thoroughly overhauled and cleared up ; old useless bottles and jars, either empty or containing solutions and chemicals not now in use, be thrown out, and either destroyed or stowed away in some other place ; and everything arranged ready for use. Back-grounds, chairs, tables, rockwork, grass mats, and in fact all the general apparatus and accessories, should be inspected and put to rights ; while in the printing department there is always work to be found replacing broken springs and defective backs to the pressure-frames, manufacture of a stock of vignette boards, burning and reducing of



wastes, to say nothing of the storage of negatives, and a hundred other minor things appertaining thereto.

Then comes the great question as to whether some little increase cannot be made in the ordinary winter takings, by the introduction of some line or lines of business for which in the summer we have no time, of which useful commodity we have now enough and to spare, and which we would fain turn into money. Many a photographer, if he sets his brains to work, will discover more than one way of so doing, and I may perhaps be allowed to instance one or two which strike me as being applicable to all business, and more especially to those which have an enlarging plant attached.

There are few, if any, photographers who cannot reckon among their *clientèle* some few sitters who aver one special portrait to be the best they have ever had taken, and whose constant re-orders from that special carte or cabinet negative verify their belief in the same.

Now is the time to look out all such negatives and make tasty enlargements therefrom, varying in size and style, according to the social standing and worldly welfare of the subject, or his or her family and connections. These can easily range from, say, the whole plate, monochrome or water-color opal, to the 24 by 18, or the kit-kat oil painting, or carbon portrait worked in monochrome; and it will be found that if these are submitted on approval, at a moderate and fairly remunerative price, they will, in nearly every case, be purchased, and those few that are not, will not be wasters, for the addition of new specimens every season will be found to add materially to one's business.—*Photographic News*.

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## PHOTOGRAVURES AND PHOTOGRAVURES.

BY ERNEST EDWARDS.

It is to be regretted that recently a number of meritorious productions have been put on the market under the name of photogravures, which, in reality, have no claim to that title. It would seem to be very desirable that manufacturers and publishers

should come to an understanding of the accepted meaning of process words, or the public will soon discover that it is being misled.

There are three distinct and well known methods of printing—type printing, lithographic printing, copperplate printing. Photography has been applied to each of these methods, and, rightly or wrongly, its application to each has come to be known by well worn words. Photo-engraving, photo-electrotype, zinc etching, typo-gravure, are understood by everybody to mean cuts to print with type made by photography. Photo-lithography is understood to mean a lithographic result produced by photography. Allied to this is the photo-gelatine series, where the principle is the same as in lithography, but where a surface of gelatine is used to print from, instead of a surface of stone. A variety of names, barbarian or otherwise, have been applied to this method, but they are all well understood as meaning prints produced from a printing surface of gelatine. The most important of these names are phototype, lichtdruch, albertype, artotype, and heliotype. It is to be hoped that, as time goes on, these will all come to be known by the generic name of photo-gelatine work, which very properly expresses their origin.

Photogravures and heliogravures have always meant, and always should mean, results produced by the copperplate method. The public, and especially the educated public, understand this pretty thoroughly.

Now, if the results produced by any one of these methods are put on the market as being the results of one of the other methods, it seems to me that, sooner or later, the public will discover that it has been deceived, and get confused in the matter; and, though the offending party will suffer most, the public will lose confidence, and all will suffer more or less. I am led to these remarks by looking over a number of beautifully illustrated books recently published, all of the illustrations in which are called photogravures. None of them are photogravures, but all are produced by the photo-gelatine processes.

What is the sense of this? Nothing in the world can beat the special qualities of

gelatine printing—qualities which photogravures do not possess. And nothing in the world can beat the special qualities of photogravures—qualities which photo-gelatine prints do not possess. To my mind, it is as much an outrage on photo-gelatine as on photogravure work to reverse the names. Yet the tendency is to-day to do just this thing—a serious mistake, that will become, if not checked, a serious misfortune.

Would there be any cause in calling a lithograph a steel engraving? It would be just about the same as calling a photo-gelatine print a photogravure, and the result might benefit the producer for the moment; it would be otherwise when the deception was discovered.

These thoughts have been in my mind for some time. I am prompted now to the utterance of them, as already one writer (in the *Art Review* of November) substantiates my opinion as to the confusing effect on the public, in a paragraph which I conclude by quoting:

“Process prints are also growing in favor, the magazines of the better class and book publishers making frequent use of one or more of the several kinds. As a rule, the public are interested in these prints as pictures, rather than in the methods by which they are produced; but it must be confusing to most people to find so many different names applied to a process which is apparently the same under its different names. Thus, there is one kind of print called the ‘Ives’ process, ‘Mosstype,’ ‘Typogravure,’ and ‘Meissenbach,’ all being more or less alike in pictorial form and effect. Again, a class of illustrations printed from the surface of gelatine are variously termed photo-gelatine prints, phototypes, artotypes, heliotypes, albertypes, indotints, etc., the general appearance of all being the same. Still another and more expensive kind of illustration is that printed from the face of copper plates, and called gravure, helio-gravure, and photogravure. Of this last class are three of the full-page illustrations to be found in each number of the *Art Review*. The difference in appearance between a gelatine print and a genuine photogravure—that is, a print from the face of a copper plate—is easily detected on placing them

beside each other; the former has a flatness and surface-effect that is exchanged in the photogravure for depth and richness of color. But there is just enough similarity between them to deceive the inexperienced, and perhaps it is for this reason that the photo-gelatine prints of a certain eastern firm are now masquerading in the market as so-called ‘photogravures!’”

## A NEW THEORY OF THE PLATINOTYPE.

BY D. L. HUNTSMAN.

A WRITER in a recent issue of the PHOTOGRAPHER gives, as a basis of future investigation, an explanation of the chemical reactions in this process, which, though the usual one, appears to me incorrect, and likely to mislead the experimentalist.

That the ferric oxalate is reduced by light to ferrous oxalate is a very simple and pretty explanation; but its beauty is somewhat marred by the fact that it is not strictly true. The fallacy is demonstrated in this way: Ferrous oxalate is perfectly insoluble in pure water, while the image on platinotype is completely and easily soluble. The true explanation of the process, it seems to me, may be found in the peculiar molecular structure of oxalic acid. Anhydrous oxalic acid may be represented by the formula,  $C_2O_3$ , a sesquioxide of carbon; this is equivalent to  $CO_2 + CO$ . By this is seen that it lacks but one atom of oxygen to be two molecules of  $CO_2$ . When the oxalic acid can obtain oxygen, it breaks up into  $CO_2$  (carbonic anhydride or carbonic acid gas).

This affinity for oxygen makes it a reducing agent; oxalic acid is used to reduce the gold from old toning baths. The acid takes the oxygen from the water ( $H_2O$ ), and the hydrogen unites with the chlorine of the gold.

The composition of ferric oxalate is  $Fe_2(C_2O_3)_3$ , or  $Fe_2C_6O_9$ . Now, by the action of light it loses one molecule of  $CO_2$ —that is, one molecule of  $C_2O_3$  breaks up into  $CO_2$  and  $CO$ ; of these,  $CO_2$  escapes as a gas, but the  $CO$  is still united to the iron. In other words,  $Fe_2(C_2O_3)_3$  exposed to light becomes  $Fe_2(C_2O_3)_2(CO) + CO_2$ . Such is the

composition in the printing frame. When the paper is developed on hot oxalate of potassium solution, potassio-ferrous oxalate is formed and CO liberated.

Of course, the latter is a powerful reducing agent; but I conceive the CO is really the most important factor in the reduction of the platinum salt. It would not be practicable to mix the PtCl<sub>2</sub> and the potassium oxalate, unless the solution were very rich in platinum, and the platinum would soon be reduced by the ferrous oxalate with which it would become charged. The whole success of the process depends upon the instantaneous reduction of the platinum before the solutions have time to spread in the paper.

I agree with the gentleman in the opinion that the present process will probably be supplanted by one more simple and economical, and one that will admit of this use of a surface of gelatine, albumen, or the like. The improvement will probably be a method by which a really insoluble reducing agent can be produced on the film capable of being toned in a weak solution of platinum or gold.

I have succeeded in toning blue prints with platinum, gold, silver, and copper. But it is not the ideal process—the process of the future. Every one must admit that a good daguerrotype or collodion positive possesses a charm that is never found in paper prints. What is it that gives the direct positive its pleasing realistic appearance?

A shadow is absence of light—obscurity. To give the best idea of roundness or distance, the lights must be nearer the eye, and the shadows represented by the absence of a reflecting surface. These conditions are absolutely necessary to the perfection of any picture.

The ideal process is one in which a perfectly black surface is covered with an opaque film of pure white, which, when exposed under a negative, will become soluble in those parts acted on by light, and which, after finishing, leaves an image composed of the unaffected white substance in the film.

The trouble with the ferrotype, etc., is that the lights are not white. I could point

out various ways which seem to lead toward the desideratum, but it would be a waste of time to write of mere ideas. Beautiful positives may be made by bleaching a negative both before and after fixing in mercuric chloride, care being taken to wash thoroughly between the operations. The image is permanent, consisting of pure mercurous chloride, but lacks opacity.

[Translated for *The Philadelphia Photographer*.]

## INDUSTRIAL PHOTOGRAPHIC PROCESS.

APPLICABLE TO THE REPRODUCTION OF PHOTO-MICROGRAPHS.

BY M. A. DENAYER.

THE industrial process for the phototypic reproduction of photographic clichés is within reach of all those engaged in photography or photo-micrography. Besides the photographic and microscopic instruments necessary for making the clichés, it is necessary to procure a small press, costing from 80 to 100 francs, similar to that used in autography; a drying-box, with adjusting screws; a good spirit level and well-polished glass plates (generally 18 x 24 centimetres), which, by a special adjustment, may be solidly affixed to the table of the press. The process rests on the insolubility of bichromatized gelatine, caused by the action of the luminous rays with an intensity proportional to the *photo value* of the different whites of the image of the cliché through which it passes. The preparation of the plates requires the successive use of the following products:

### Mixture A.

White of Egg, beaten to a froth . . . . .	60 parts.
Commercial Solution of Silicate of Soda . . . . .	60 "
Distilled Water . . . . .	120 "

This solution is placed in a small flask, and allowed to rest for twelve hours. The limpid portion, which is at the bottom, is spread uniformly on highly polished glass plates.

### Mixture B.

White Glycerine, very hard . . . . .	20 parts.
Distilled Water . . . . .	100 "

To this solution, made over a water-bath, at a temperature of from 113° to 122° Fahr., add:

Bichromate of Ammonia . . . . .	4 parts.
Dissolve in—	
Distilled Water . . . . .	40 “
Liquid Ammonia . . . . .	15 drops.

The mixture is filtered at a temperature of about 113° Fahr., through white filtering paper.

To prepare a glass plate, first coat its surface with a uniform film of the mixture A. For this purpose the plate is levelled on three wooden supports or cylinders, with adjusting screws of from four to six inches in height. Supposing the plates to be rectangular in form, first pour a band of this solution, about one-eighth of an inch in width, on the whole of their parts; then to spread the mixture on the entire surface of the plate, make use of an iron rod, bent in the form of a bow, to the extremities of which a piece of ordinary white thread is stretched. Immersing the stretched thread in the mixture, slightly incline the plate with one hand, while with the other carry it gently from top to bottom on the whole surface. The liquid follows the thread without any interruption, thus surely avoiding solutions of continuity and the formation of air bubbles so prejudicial in the operations that are to follow. The plate is allowed to dry in the air; it is now washed in cold water for about five minutes, then placed in the drying-box, on the adjusting screws of which, by a previous trial, it had been levelled in the horizontal position. The plate is allowed to remain for two hours at a temperature of 135° Fahr., and whilst warm it is uniformly coated with the mixture B, in the same manner mentioned above (adjusting screws and thread stretched on the metallic bow). As soon as the plates are coated with their gelatinous film, they are again placed on the drying-box, in which they are allowed thoroughly to dry, for about two hours, at a temperature of 145° Fahr.

The plate, when dry, has become sensitive to the action of the luminous rays. After cooling, it is placed in the pressure frame over the negative, and in direct contact with

it, care being taken to cover with black paper all the portions of the plate which are not to be acted upon by the light. It is now exposed to diffused light, the time of exposure varying from five minutes to one hour, according to the intensity of the negative.

Before making the prints, *wash thoroughly* the plates to remove the excess of bichromate; or, still better, allow the plate to remain from five to six hours in running water. The plate is now dried in a dark place, free from dust, which, moreover, should always be carefully avoided; the printing of the positives is then proceeded with. For this purpose, wet the plate with the following mixture:

Glycerine . . . . .	100 parts.
Ammonia . . . . .	5 “
Hyposulphite of Soda . . . . .	2.5 “

After ten minutes remove the excess of the glycerate, first with a sponge, then by means of a very clean buffer, made of rags, which should never be *rubbed* over the surface. The plate is inked with two lithographic inks special to photography: one strong, to be spread with the leather roller; the other weaker, to be used with the glue roller. The prints are now pulled, after having surrounded the inked image with a specially adapted frame. It is necessary to wet the plate with the ammoniacal glycerate after making about a dozen plates.

The number of good impressions to be obtained from a plate varies from 400 to 800.

It is easy to prepare a half dozen plates in one operation. The preparation, which lasts, with the washings, heatings, and dryings, three days at the most, requires, in reality, on the part of the operator, a manual labor of only about two hours. It is not necessary to make the operations in a dark room; one in which the shades are lowered will answer.

I suppose that it is not necessary here to speak of the advantages offered by photography for the reproduction of photo-micrographs. The specimens that I have obtained, and which I have submitted to several specialists in micrography, have fully shown the value of the process.

## DEVELOPMENT OF AMATEURS.

BY THOMAS PRAY, JR.

IF a careful reader of all the hints and points in developing cannot gather much from the last two or three years' perusal of the photographic journals, he or she ought to quit either the business or asking questions as to why certain things occur, when the ground has been gone over and over again in the aforesaid journals. And while penning this stricture, it would be unjust to confine it to amateurs, for there are some in the professional ranks who practise the same dumb questioning.

The development of an amateur is quite as necessary as the development of a plate. Rushing development of either is a dangerous process; in one the plate is weak and lacking sadly in crispness and modulation, and in the other a deplorable lack of comprehension of cause and effect, and a decided proclivity toward using many makes of plates, with many a lot of mixtures called developers and with a charming (?) lack of success, but with "ill luck;" "plates are bad," and excuses as shallow as the image on the plate, and poor prints, even when they are muchly doctored.

Some amateurs change plates twice or more a month, and "set up" every new developer and experiment with it in a most loose-jointed way, never stopping to think if such a thing is possible as making one developer and one brand of plates do good service, or of getting respectable negatives by using some patience and a "few" brains in developing. If any one wishes to get good negatives, let him get some one brand of plates, some one developer, and then go at it systematically to find out how much pyro, or soda, or ammonia, or anything it will take to get a brilliant negative. The exposure cannot be guessed at with any certainty of a negative of even passable quality. Then either one of two courses must be adopted. Either make a developer of a known strength, and expose until the correct exposure is known, or make exposures and then, by using separate solutions, find the right developer for an approximate exposure to obtain a negative of good printing quality, and for different subjects different

exposure and treatment are required, all of which must, to a certain extent, be learned by each person for him or herself.

And right here another element enters which must be understood, and unless it is well understood poor negatives will be produced with a regularity not charming. Many a professional does not notice this until he has gone through a box or two. The plates of different makers will not stand the same amount of pyro, or soda, or potash, or ammonia, nor can they all be developed up to the same point in appearance by reflected light. Take the Cramer yellow, and the Stanley old; if Cramer gets same soda as Stanley with pyro equal—Cramer is too thin—if Stanley is developed up until high lights are clearly perceptible on the face of plate, the negative is quite too dense, etc. The Cramer requires  $3\frac{1}{2}$  to 4 grs. of pyro and not so much soda to make a beautiful negative, the Stanley requires less pyro and more soda to get at its best, and so on ad infinitum. These points must be so well settled by each operator that the failures are noted only by their small number; and unless these points are carefully noted success is not assured; then there are other matters in development which must be thoroughly mastered, and just as carefully.

Amateurs who expose and then trot off to some professional to develop, patch, and retouch and print, are on a par with the "dudes," who buy exposed plates and have such nice times showing the girls, "yer know," what they have seen in "their travels" [from No. 000 AA St.], or equally on same footing with the man who reads up, and expects from the "hotch potch" of any book to learn the whole business and make a success of it—not being able to sift out the valuable from the trash.

"Rapid Development."—Did any of our readers ever enter a restaurant, from the look of the show windows, only to find the inside vastly different—were you ever sold? If not, you expose six plates; rush three of them and then "go slow;" develop the other three with patience and brains—work for the quality—and remember that a negative once finished is equally for all time—and good or bad, any one limitedly acquainted with chemistry knows that rapid

development and quality of printing do not go together.

Rapid exposures come under the same restriction, as a general rule; but an experience, born of practice, enables me to make rapid exposures on some subjects with good success; but when there is a blending of time in exposure and skill in development, the results are all that, with present knowledge, can be obtained.

Moderate exposures and slow development will give the greatest amount of pleasure and profit—the finest negatives and by far the best prints.

Changing developers is not profitable, as a rule, in the way it is frequently done; the surest way is to stick to a plate and learn thoroughly all its peculiarities, then you can get to be master of the art of making a negative that will make prints of the best quality, without all sorts of patching.

The composition of developers, light in which to develop, how to do it, have all been so well and frequently treated that we need not add to present burdens of the reader.

Mastery of development requires patience, practice, and considerable perseverance; but the result, when attained, is well worthy all that it costs, and pays good interest—if beautiful pictures delight you and your friends. And you can say (without any mental reservation) that from the plate maker to the burnishing of the print, "It is all my own handiwork."

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### DEVELOPMENT IN THE FIELD AND A RECORD BOOK.\*

BY W. E. PARTRIDGE.

THE result of my summer's experience, I hope, may be interesting to some of my old friends, especially those whose experience is somewhat limited. My first advice to all who intend going into the country for the summer, is to buy their plates in the winter, and test the emulsion until they find the one which suits them. After several distressing failures, arising from using untried plates in the field, I have reached these conclusions.

\* Read before the Society of Amateur Photographers of New York.

Plates purchased in June and July have proven less satisfactory than those obtained in March, April, and May. I present no reasons for this, and have no theory to offer. The fact, however, has been so thoroughly impressed upon me by the experience of several seasons, that I have no hesitation in suggesting the necessity of testing plates during the winter, and buying for summer use such emulsions as are satisfactory.

During the past summer I made about eighty exposures, and my experience confirms me in the belief that for successful work there must be occasional development in the field. A gentleman who has just returned from a long trip on the Pacific Coast, brought with him some two or three hundred plates, exposed during his journey. The results, a part of which I saw, prove conclusively that he might have saved a portion of his plates had he developed a few during his journey. Another large batch of plates I have just seen developed were exposed in Europe. More than ninety per cent. were failures. A few of these plates developed in the field would have saved a large number of the exposures, perhaps one-half.

After studying carefully over every rational developer that has been suggested, I have worked out the following:

#### *Alkali.*

Carbonate of Potash . . .	2 ounces.
Sulphite of Soda . . .	1½ "
Water, to make . . .	7 "

#### *Bromide.*

Bromide of Potassium . . .	60 grains.
Water, to make . . .	1 ounce.

Pyro and sulphite of soda each carried dry. The solution of the latter may be made in a few minutes just before development. A saturated solution, or one nearly so, used at the rate of a quarter ounce for each ounce of developer, will be sufficiently accurate.

An ounce of the developer is made by taking one-fourth of an ounce of sulphite of soda solution, adding pyro according to the plate, exposure, etc., say from three to eight grains, three minims of bromide, and making up to one ounce. In this the plate is soaked. Then the potash is added to the extent of from one to thirty minims, according to ex-

posure, etc. Usually three or four minims are ample for all exposures greater than the tenth of a second.

The claim I make for it is that it can be put in less bulk than any other which has yet been proposed. It is, therefore, best for the tourist, who should have his chemicals in the least possible space. A six-ounce bottle will contain sufficient quantity for the development of seven dozen 5 x 8 plates. I prefer to carry the pyro dry, and use the well-known mustard spoon for getting at the quantity. I use one which holds, as nearly as possible, two grains of dry pyro. It has the advantage of keeping better than any of its solutions; for the traveller, there is the additional advantage that the dry form does not injure other articles if the bottle gets broken. A good wrapping of paper is an ample protection for it. The other chemicals can be carried dry and mixed when wanted. If the granular sulphite of soda be used, it can be carried in a paper box as easily as hypo. Alum is absolutely necessary for some brands of plates. Chrome alum appears to be most effective, and is most easily carried. A small quantity answers for a large number of plates. Hypo should be carried in a box, or in paper, and in either case should be wrapped in a piece of cotton cloth to prevent particles from sifting out. The chemicals, bottles, and pans, for developing five or six dozen plates ought not to occupy a space larger than ten inches wide, twelve inches long, and two or three inches deep.

An important point in the field is to be able to recognize a plate, and to know at a glance whether a plate has been exposed. A plan I have devised covers the ground more completely than any system I have seen. Every plate receives a consecutive number as it goes into the holder. This number is pasted on to the margin.

I use for the purpose the series of gummed numbers in the early editions of Anthony's little pocket record book. Those in the later editions are too wide. All my holders have slips of white silicate paper pasted upon the wood, and upon this slip the number is written in lead pencil. These latter numbers can be easily erased. As soon as plates and slides are both numbered, and the plate

is in place, the number is entered upon a special record book.

The book used for the purpose is a little more than three by five and a half inches, and two numbers are placed on each page. When the exposure is made, a lead-pencil line is drawn through the number on the slide, and the usual exposure record made in the book; this record fills less than half the space reserved for it. Exposed plates can now be packed away and kept without injury, loss, or danger of double exposure.

When a plate is to be developed, the first thing to be done is to rub the number with vaseline or wax, the latter being preferable; this entirely prevents the number from leaving the plate. It remains attached through the operations of development, fixing, and washing. All the particulars of the development are at once entered against the number of the plate, and, after a print has been taken, a final entry in regard to the character of the negative is made. Development record is made in the dark-room, and often while development is going on. This plan of record book combines the exposure and development records, and shows the whole history of the plate at a glance. This I consider one of the most important and valuable features of my scheme.

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## SOME HELPS TO ENLARGING.

BY "DEXTER."

IN the hurry and bustle incidental to, if not inseparable from, every-day life, we all have a tendency to work too much by rule of thumb, and it must be confessed that rule of thumb often turns out very good results. But, in spite of this, and of the old adage to the effect that an ounce of practice is worth a pound of theory, we cannot afford to give theory the go-by entirely. Theory is a useful servant, but a bad master, for those patient, plodding creatures who think of nothing else seldom turn out work which has the stamp of genius upon it. Theory holds them down in her rigid grasp, and they have not the pluck to try anything or dare anything that seems opposed to her teachings. If, on the other hand, theory be regarded as a reliable servant, to be consulted

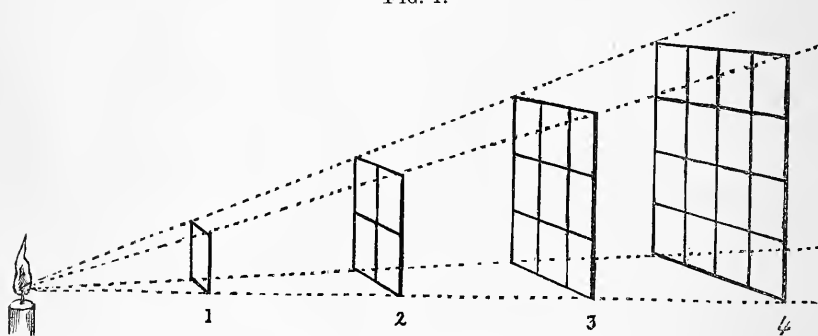
when difficulties occur in practice, her value will soon be recognized.

These thoughts came into my mind lately in consequence of watching a young experimenter, who was endeavoring to make some enlargements on bromide paper from small negatives, by means of an oil lantern. The negative was placed on the stage of the lantern, and its image was projected upon the side of a wooden packing-case, which stood on the table in front of it. My young friend was endeavoring to make from his small negative ( $\frac{1}{4}$  plate) enlarged copies of different sizes; and, to obtain the different sized images, he had, of course, to move the focussing surface either to or from the lens, as the image was required to be smaller or larger. But with regard to exposure he worked entirely by rule of thumb, or rather, I might say, by no rule at all. It was all guesswork, and, although he tried many pilot slips of paper with watch in hand, he

seems "as clear as mud," and closes the book in disgust. Let us see whether this matter cannot be explained in such a way that a child can understand it, and turn it to practical use in photography.

Referring to Fig. 1, let the four squares numbered 1, 2, 3, and 4, be printing-frames placed at distances of 1, 2, 3, and 4 feet from a candle flame. Let us suppose, also, that we have ascertained by experiment that the plate or paper in the first position (No. 1) is sufficiently affected by the light if it remain there for one minute. (This is, of course, merely stated as a case in point. Bromide paper at such a distance would be sufficiently exposed, under a normal negative, in about eight seconds, while a chloride plate under such conditions would want two minutes or more.) Then, if we remove the frame to position No. 2, at two feet from the light source, the necessary exposure will not be doubled, as some might think, but quad-

FIG. 1.



failed to turn out any really correctly exposed pictures. His failure was chiefly due to his utter ignorance of a certain law in optics, which may be found stated in the text-books as a thing which must be digested by the student, but which is seldom explained in a rational manner. Here is the law: "*The intensity of illumination on a given surface is inversely as the square of its distance from the source of light.*" This law, as stated (in the text-books), is generally followed by a diagram, consisting of a number of angles and circles duly lettered, and followed by a long description. The student wades through this slough of despond, utters an irreverent remark to the effect that it

is multiplied. For the square of 2 is that number multiplied by itself, *i. e.*, 4. The right exposure, therefore, will be four minutes. Removing the frame to position 3, we must once more square that number in order to arrive at the right number of minutes for exposure at this increased distance,  $3 \times 3 = 9$ . Therefore nine minutes will be the time. It is easy to see that when the printing-frame is removed to the furthest distance of all, which is four feet from the light source, the exposure will be increased to sixteen minutes. To make the diagram (Fig. 1) more explicit, the vertical squares 1, 2, 3, and 4 have been so subdivided that the number of spaces in each indicates the number of unites



of exposure, be that unit a second, a minute, or an hour. The same rule holds good for enlarging operations. Thus, supposing that we are working with a magic lantern, and that the necessary exposure at one foot from the lens is half a minute; at two feet the time will be two minutes; at three feet four and a half minutes, and so on. The practical worker will have this little bit of theory in his mind whenever he is operating, and he will soon prove that the theory holds good.

Another help in enlarging, which will be

ordinary white cartridge paper, slightly longer than the sensitive slip. Its purpose is to serve as a handle by which to pull the sensitive paper through the sleeve, and also to furnish a white surface upon which a small part of the picture can be focussed, that small part being confined to the central circular hole in the upper card.

Now let us see how the gauge is used in practice. It is first pinned on the focussing board so that a distinctive part of the image is thrown upon the central hole. In the case of a portrait this should be the eye.

FIG. 2.



found useful, is a little piece of apparatus— if it can be dignified by that expression— which I have lately made, and which I call an exposing gauge. It is so simple in construction that any one can make it out of a couple of strips of cardboard. The arrangement is shown in Fig. 2. The size of the gauge is immaterial, but a length of twenty inches will be found convenient. A slip of card of that length, and about one inch in breadth, is cut with pointed ends, each point having a hole picked in it as shown. By these holes, and with the assistance of a couple of drawing pins, the contrivance can be readily attached to any flat surface upon which the enlarged image from the lantern is focussed. Placed above this slip is another piece of card slightly shorter, and with a round hole in the centre. The two slips

Having focussed carefully on the blank paper, the first division of the sensitive slip, which will be that marked *e*, is pulled in front of the opening. Let this be exposed for, say fifteen seconds, then pull the slip onward and expose *d* for twenty seconds, *c* for twenty-five seconds, and so on. The gauge is then taken into the dark-room, its slip of sensitive paper torn from its yoke-fellow, and carefully developed. It will then soon be seen which of the lettered spaces has received the correct exposure; and a memorandum noting time and distance of lens from screen can either be attached to the negative, or entered in a book against a number corresponding with a number scratched on the glass negative.

The same principle can be applied to printing in the printing-frame on bromide

FIG. 3.



are bound together with strips of tape glued over their upper and lower edges, the two ends being left open, like a sleeve, for the reception of a slip of paper, like that shown in Fig. 3.

Fig. 3, as indicated, really consists of two slips of paper gummed together end to end. One is sensitive bromide paper, ten inches in length, which has been spaced out into five divisions, and marked *a, b, c, d, e*, with an aniline ink pencil. The other part is

paper by gas, or lamplight. When the frame has been charged with its negative and bromide paper, support it upright at a distance of, say eighteen inches from the turned-down flame. Now, place in front of it an opaque card, sufficiently large to cover more than the frame. This card should have a hole about one inch in diameter cut in it in one corner. Turn up the light and expose for five seconds. Alter the position of the hole and give ten seconds, and so on.

When the paper is subsequently developed these several exposures can be readily identified, and the negative can be labelled to the effect that it requires so much exposure at a given distance from a flame. Thus, bromide paper, 18 in. 25 sec. This negative will then be an infallible guide for the exposure of negatives of a similar type; for a systematic worker—unless he be quite a beginner—will fall into the way of producing negatives of much the same character and strength, and printing from them by lamp-light will then become an easy matter to him. Bromide paper positives are little, if at all, inferior to platinum prints so far as appearance is concerned, and although it is a moot point whether they be as permanent, I can certainly say, from personal experience, that they will not show any change in six years. It is, of course, understood that they must be thoroughly fixed and thoroughly washed if this permanence is expected from them.

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### ARTISTIC PHOTOGRAPHY.

BY ADA S. BALLIN.

ALTHOUGH the title "Photographic Artist" is one laid claim to by all sorts and conditions of men, from the itinerant of Hampstead Heath and Brighton Beach to the dweller on the King's-road and in Bond Street or Picadilly, an artistic photograph is by no means so frequently met with as one might be led to suppose it ought to be, and the doubt will cross our minds that, if there is no very great verbal distinction, there certainly is an immense practical difference between a "photographic artist" and an artistic photographer.

The general public is inclined to believe, because photography acts by means of certain chemical and mechanical arrangements, that the process is simply mechanical; and, consequently, that any one who possesses the necessary machinery and knows the thumb rules of procedure, is capable of producing a sun-picture equal to the best. As well may it be said, however, that all painters must have equal merits because all use the same paints and brushes. A world-famed artist, in answer to a query

from a would-be emulator, once said, "I mix my paints with brains;" and, as in painting, so in photography, "brains" are the chief essential to all good work. Unless taste and reason are called upon in the study of the subject, the arrangement of the light, posing in the case of portraits, choice of aspect in landscapes, and general harmony of the various details, no excellence of result can be obtained, and any successes that may from time to time occur are purely accidental.

To become a really successful photographer, a certain amount of culture and refinement and a knowledge of the principles of art in general, and of the resources of photography in particular, are absolutely necessary. The study of character and physiognomy is also of very great value, the instinct for portrait effects, with which some seem born, being enhanced or supplemented by attention in this respect. Every sitter should be a subject of study to the operator, and in the case of strangers, a little conversation should be engaged in before the sitting commences, so that some insight may be gained into the individuality of the "subject," while the latter is at the same time made at his or her ease. Constrained attitudes and unnatural expressions may thus to a large extent be avoided.

The individuality of each person is, as a rule, marked by tricks of expression, habits of holding the head, hands, etc., postures quite apart from the mere anatomical lines of the face and figure, which disappear under the clumsy treatment of an unskilled operator, and the loss of which cause the relations of the "subject" to exclaim, without really knowing why, "It isn't at all like!" In this may probably be found the reason of the fact that strangers generally see more likeness between photograph and original than do relations or intimate friends; the former look to the mere anatomical resemblance, the latter to the life of the portrait as shown in habitual expression. To secure a fine portrait several plates should be used, so that various attitudes, aspects, and lightings can be tried, and the best selected for printing. After practice on these lines, it will be found that a power of rapidly appreciating what is best suited

to each case will be acquired, so that, although at first a much greater expenditure of time than is usual is required for each subject, in the end a most valuable habit of insight will have been gained, and it will take no longer to produce an excellent picture than it takes an ordinary operator to make a bad one.

Opportunities for study are constantly at hand, not only in the visitors to one's house or studio, but in every face one meets. In watching the expression of these—the play of light and shadow over them, the varied aspects of trees, rocks, and ruins seen in one's country walks, the handsome interiors one visits, the postures unconsciously adopted by man, woman, and child—valuable lessons may be learned, and experience gained for future use.

When I was a little child my mother read to me a story called "Eyes and No Eyes: or, the Art of Seeing," which showed how much pleasure and knowledge may be gained by an observant child in its walks abroad, while the unobservant strolls dully on, taking its exercise as a troublesome duty. The "art of seeing" is one which ought to be very much more cultivated than it is at present, and the habit of quickly comprehending details and their general relation to one another, is one of the greatest possible value. Inattention to seemingly trifling details is a frequent cause of non-success in photography. For example, an ugly hand, or even a deformed finger, appearing prominently in the photo. would spoil the best picture; and even a beautiful hand becomes disproportionate if carelessly advanced too near the camera. In general, it may be remarked that hands are as characteristic of their owners as faces—so much so in fact, that in photographing criminals for purposes of identification the hands are invariably taken into the portrait, as less easy to be disguised than the face.

This being so, it is obvious that the hands deserve a much greater share of attention in posing sitters than is generally bestowed upon them. Looking at nine portraits of myself taken by different persons supposed to rank high as professional photographers, I find the hands are properly posed in only one; in one they are too long; in another

too broad; in a third too thick; in a fourth too large; and so on. In the only photo. in which they are well brought out, however, the effort to arrange them seems to have exhausted the operator, and led to the neglect of the head, which is placed quite askew, the nose coming out about twice its actual length. The perspective of the head is, after all, the most important point in portraiture. As a general rule, the camera should be placed in the same position in relation to the head as that occupied by a painter when painting a portrait—either on a perfect level with or slightly below the subject. If his or her neck be short, the lower position of the camera gives a little height, and prevents the appearance of the head sinking down into the shoulders, so often seen in photographs. If, on the other hand, the neck is abnormally long, the camera must be arranged accordingly.

While truth should always be sought in portraiture, justice ought to be tempered with mercy, and the beauties and defects of each sitter should be studied in order as far as possible to conceal the latter, while accentuating the former. For example, by a skilful arrangement of light, thin can be made plump and the stout freed in appearance from corpulency. With a thin person the light should fall on the short side of the face, with the broad side in half-tint, and the lighting should be from as low a point as is possible with regard to the retention of delicate modelling. The plump subject, on the contrary, should be placed in the usual portrait light, with strong shadows, so as to reduce the roundness of the face.

All accessories, whether in the matter of dress or of details, introduced for the sake of effect, to make up a picture, as I pointed out in a recent article ("Hints to Sitters," *Camera* for July), should be subordinated to the subject of the picture. This is especially the case with backgrounds, in which the most glaring and idiotic errors are frequently committed. For example, a child may be seen sitting on a carpeted floor, leaning against a dining-room chair; but, instead of wall and ceiling, a landscape makes up the background; or a young man in full tennis costume with a racket in his hand represented coming out of church.

In one picture I have seen, two girls in ball dress, with bare necks and arms, are swinging on a common garden swing miraculously suspended between two marble pillars, with a background suggestive of Athenian ruins. The ingredients of this picture were certainly not "mixed with brains," and yet it was executed by a celebrated firm.

Things may be seen in photographs which are visible nowhere else in the external world—as, for example, a lady dressed in furs, with an Italian sunset for a background, and surrounded by tropical plants, or another holding up a sunshade while the trees behind her are loaded with snow. Figures are also quite commonly represented out of all proportion to their surroundings, as, for example, a gentleman several feet higher than the door or arch through which he is evidently supposed to have just passed, a child taller than the church spire or tree near which it is playing, or a lady on the seashore with a ship so painted in the background as to appear in danger of carrying off her back hair.

It is a great mistake to select too pronounced a background; those with undecided lines and faint figures are far more effective, and any figures there may be about it should always be placed so that the subject which naturally occupies the foreground shall not appear out of proportion. An error which often appears in otherwise good photographs is a contradiction in lighting, the design of the ground being represented as lighted from the left while the face and figure of the sitter are lighted from the right, or *vice versa*. Elaborate backgrounds can only be properly utilized by the exercise of great discrimination, and, as a rule, it is better to adopt a plain ground, shaded from dark on the one side to light on the other, the face being placed with its lighted side opposite to the dark portion of the ground so that it may be brought into proper relief. It is, unfortunately, quite a common fault to place the face in such a position with regard to a light background that the one is hardly distinguishable from the other. I have before me an extreme example of this fault—the photograph of a group taken with a white cliff as a background, the result being that although the

dress and other details have come out with extraordinary distinctness, the faces have entirely disappeared, with the exception of the eyebrows and moustache of one gentleman who happened to be rather dark.

The conclusion to be drawn from the above is that an artistic photograph is by no means a mere mechanical effect, since its production demands natural ability, study, the use of considerable discrimination, and a firm will, albeit exercised with a gentle and polite manner to control recalcitrant sitters, who are apt to consider that they know better than the operator in regard to matters of dress and pose. Photographers, whether professional or amateur, should not be satisfied with producing pictures only sufficiently removed from the absolutely bad as just to content the non-critical people for whom they are taken. It is said that art should be worshipped for her own sake, and photography is an art which ought not to be degraded by her disciples either into a trap for getting money, or into a mere pastime. Whatever is worth doing deserves to be done in the best possible way, and we may hope, in the words of Milton, "by labor and intent study . . . joined with the strong propensity of Nature," to obtain in the future what is hardly known at present, except among a few skilful and enthusiastic workers, really artistic photography.—*The Camera*.

### PRACTICAL POINTS FROM THE STUDIOS.

THE NEVER LEAKING ETHER BOTTLE.—Every surgeon has experienced annoyance from corks and stoppers of ether bottles and cans being loosened by the vaporizing effect of warmth, or by overturning in the operator's bag. Dr. John B. Roberts, after using, with varying degrees of dissatisfaction, tin cans with corks and ground-stoppered bottles in cases, has adopted, at the suggestion of a friend (Dr. D. M. Stout), the ordinary lager beer bottle, with rubber stopper and iron-wire spring clamp. These bottles, being made of strong glass, are not broken by rolling in the bottom of the carriage, nor by being carried in a bag with steel instruments; no leakage is possible; the stopper

is not liable to stick and become immovable, but is easily removed by pressure on the leverlike clamp; and the shape of the bottle allows the ether to be rapidly and completely poured out, while its transparency enables the surgeon to always know how much ether he has on hand. The single objection is the suspicious nature of the well-known article. Dr. Roberts expects to get rid of this by having similar bottles made especially for those who use only ether.—*Polyclinic*.

**GLOSSY POLISH FOR ALBUMEN PICTURES.**—Ordinarily there is used as a polish a mixture of 1 part wax with 1 to 5 parts turpentine. A much higher gloss may be obtained if, to this mixture, resin or varnish is added. Many of these intricate mixtures, notwithstanding the multiplicity of their ingredients, do not possess any special advantages. Of much greater efficiency is the polish formed in the following manner: 100 grammes of white wax are melted, 100 grammes rectified turpentine oil are added, and 4 grammes Dammar varnish. The mixture is made in a dry glass. If it should be too hard, add more turpentine. The Dammar varnish produces a strong gloss.

The mixture is rubbed on by means of a rag. It requires more exertion to rub it on the picture than the ordinary polish, but produces a better gloss on the albumen pictures.

**GOOD MOUNTING PASTE.**—Add to 250 c. cm. of concentrated gum solution (2 parts gum to 5 parts water) a solution of 1 gram. sulphate of alumina in 20 c. cm. water. (Alum does not answer the purpose as well.) The addition of the sulphate is effective, in that this gum cannot be injured by weak lime paper, and besides wood can be pasted upon wood by means of it. Its adhesive qualities are, in general, greater than those of pure gum-arabic.

**DRYING THE NEGATIVE.**—It may not be generally known how great an influence the quick or slow drying of the soaked (?) negative has upon the toning of the picture. If a plate is dried quickly, perhaps near a properly heated stove, then the picture gains distinctly in strength. Each one can prove the truth of this statement for himself by

drying the plate in the usual way upon the plate holders until half dry. Now he brings it into the warmer temperature, then after removing the moisture from the plate, the great difference between the two is shown by the surface obtained.

The chief aim of this communication is to show the advantage which accrues to us from it. It takes the place of the troublesome strengthening with quicksilver (which detracts from the fineness of the picture) if not entirely, yet in great measure. By repeatedly moistening the plate, and drying anew, the layer gains in still greater density.

**REMOVING LETTERS, ETC., FROM PORCELAIN.**—A German technical journal says that the signature, numbers, etc., upon porcelain vessels may be removed without injury to the glazing by protracted polishing with a piece of pumice stone moistened with concentrated hydrochloric acid. The removal is facilitated by exposing the letters to the vapors of hydrochloric acid.

**WATERPROOF GLUE.**—It is claimed that by soaking glue in water until it is soft, and then melting it in linseed oil by gentle heat, a condition is produced which is impervious to the action of water or dampness.

## CHICAGO CORRESPONDENCE.

The professional element in Chicago is in a constant ferment on the one subject of low prices.

Cabinets are being offered for 99 cents per dozen, and another studio is making bromide enlargements, nearly life size, for \$3 00 each; while still another adds a bromide of good size, free, with twelve cabinets, all for \$3.00; and so it goes; while a continual murmur of complaint rises from scores of studios that can hardly make ends meet because of the low prices and few sitters.

With all this lamentation and earnest appeals for some help to change the state of affairs, a few studios are having a satisfactory business at good prices, \$8.00 and \$10.00 per dozen for cabinets, with enough sitters to make the proprietors perfectly content.

Photographers seem to be easily frightened. An advertisement appears holding out the inducement of lower prices, and,

without a moment's reflection, most of the others are upset at once; they see their trade utterly ruined; not a sitter to darken their doors, and the sheriff's shadowy form dancing before their unsettled vision. With rare exceptions these cases turn out that they are more frightened than hurt. If they would make haste slowly they would find peace of mind and greater riches.

A leading studio, a few weeks ago, dropped down to \$3.00 per dozen for cabinets, and, advertising extensively, was rewarded by quite an increase of trade, but began to lose valuable patronage because they objected to the machine process of having their pictures made, waiting their turn in line, barber-shop fashion, and responding to the call "next!" coming from the busy operator, who was grinding out the sitters as fast as the dry plates could be put into the holders. One short week satisfied this proprietor, and he placed his figures again at \$5.00, there to stay or go a peg higher.

A merchant in photographic goods told your correspondent a few days since that, having among his patrons a few amateurs, he had been asked by several this question, "Where can I go to get some good pictures, and where I can have some attention paid me. I don't want to be rushed through after my money is paid at the desk with my feet hardly touching the floor, and barely getting a glimpse of the skylight room and its furniture before I am told to call in six months and get my pictures." The merchant gave him the names of those studios which were getting the highest prices, and they are pleased to extend their patronage to such, feeling that they will get value received for their \$8.00 or \$10.00.

They say amateurs are ruining the professionals, and yet the education that these parties have from the studies in photography has taught them to put a high value on the work of skilful photographers.

The Chicago Lantern Slide Club held its second meeting, Thursday evening, January 13th, in the McIntosh building, where there is every convenience for exhibiting slides with the best apparatus. A constitution was adopted, the yearly dues put at \$2.00, and the night of the meeting appointed for the

third Tuesday in each month. The list of officers for the ensuing year is:

*President*.—E. D. Fisk.

*Treasurer*.—C. H. Gould.

*Secretary*.—Dr. John Nicol, the genial editor of the *Photographic Beacon*.

It has already secured a fine membership, including such earnest workers in photography as Burnham, Hough, Manierre, Dr. Edwards, Harley, Gould, Howard, Porch, Douglass, Gardner, Shufeldt, Nickerson, Ferson, Dr. Mercer, Stacey, Matthaius, Knapp, Dr. Fuller, Stockton, Matteson. It will have a large membership, and gives promise of being one of the best societies among the many now existing. Several of the members are already equipped with lanterns, some of them being of the most expensive kind. The club anticipates having its own rooms for meeting, with a lantern for exhibition. After the business of the evening, Dr. McIntosh, with both his ether light and his new oil lantern, exhibited a large number of slides contributed by Messrs. Burnham, Harley, and the Secretary.

The photographers of Chicago are already astir in preparing ways and means for entertaining the expected guests of the convention, and to assist in every way in making the meeting a grand affair.

Yours,

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## PHOTOGRAPHY AND THE "NEW ASTRONOMY."

For some time back the readers of the *Century Magazine* have been delighted by a series of finely illustrated papers on "The New Astronomy," by Prof. S. P. Langley.

The one in the February issue was on "The Stars." Among the illustrations are "The Milky Way," from a study by Trouvelot; a "hand-drawn" spectra of stars in Pleiades; spectra of "Aldebaran" and "Vega," from photographs; the great nebula in Orion (from a photograph by A. A. Common, F.R.S.); and, finally, several illustrations to show how a second of time may be divided into parts. Of these last, one is of a man photographed while falling

through the air from a trapeze to the ground, and another is one of the lightning photographs of Dr. H. G. Piffard, to which we called attention in our issue of a month ago.

Every subject or division thereof treated by Prof. Langley is made so plain, and is so aptly illustrated, that one is as much fascinated by his tales of the lands millions of miles away as would be possible by reading the *Arabian Nights*.

And yet, great astronomer though he is, a scientist with but few compeers, Prof. Langley does not lose a single opportunity of paying tribute to photography as a helper in his celestial studies and results.

In treating that division of his subject which refers to spectroscopic research, which not only reveals the composition of the stars, but also their age, their movements, and the speed thereof, Prof. Langley, after paying a high tribute to Dr. Huggins, Prof. Young, and Mr. Rutherford, says: "Owing to their feeble light, years were needed when he (Dr. Huggins) began his work to depict completely so full a single spectrum as that he gives of Aldebaran, though he has lived to see stellar spectrum photography, whose use he first made familiar, producing in its newest development, which we give here, the same result in almost as many minutes."

After showing how, by spectroscopic observation, stages in the life of suns may be pointed out, the learned scientist says:

"Another division of our subject would, with more space, include a fuller account of that strange and most interesting development of photography which is going on even while we write, and this is so new and so important that we must try to give some hint of it even in this brief summary, for even since the first numbers of this series were written, great advances have taken place in its application to celestial objects.

"Most of us have vague ideas about small portions of time; so much so, that it is rather surprising to find to how many intelligent people a second, as seen on the clock face, is its least conceivable interval. Yet a second has not only a beginning, middle, and end, as much as a year has, but can, in thought, at least, be divided into just as many numbered parts as a year can. Without entering on a disquisition about this, let

us try to show by some familiar thing that we can, at any rate, not only divide a second in imagination into, let us say, a hundred parts, but that we can observe distinctly what is happening in such a short time, and make a picture of it—a picture which shall be begun and completed while this hundredth of a second lasts.

"On page 588 is a reproduction of a photograph from nature of a man falling freely through the air. He has dropped from the grasp of the man above him, and has already fallen through some small distance—a foot or so. If we suppose it to be a foot, since we can see that the man's features are not blurred, as they would undoubtedly have been had he moved even much less than an inch while this picture was being taken, it follows from what has been said, that the taking of the whole picture—landscape, spectators, and all—occupied not *over* one one-hundredth of a second.

"We have given this view of the falling man because rightly understood it thus carries internal evidence of the limit of time in which it could have been made; and this will serve as an introduction to another picture where probably no one will dispute that the time was still shorter, but where we cannot give the same kind of evidence of the fact.

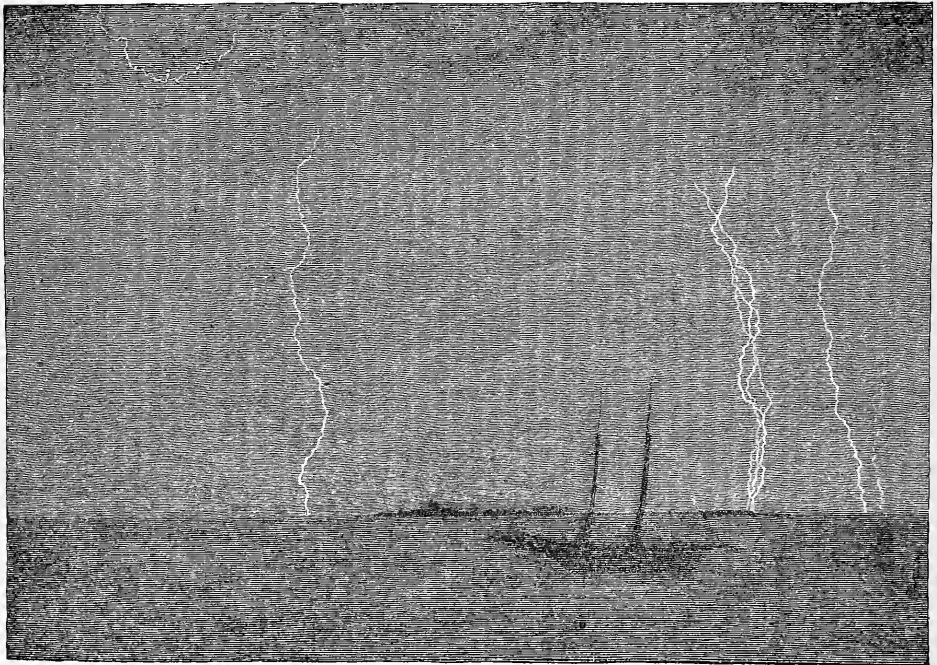
"'Quick as lightning' is our common simile for anything occupying, to ordinary sense, no time at all. Exact measurements show that the electric spark does occupy a time, which is almost inconceivably small, and of which we can only say here that the one one-hundredth of a second we have just been considering is a long period by comparison with the duration of the brightest portion of the light.

"On page 589 we have the photograph of a flash of lightning (which proves to be several simultaneous flashes) taken last July from a point on the Connecticut coast, and showing not only the vivid zigzag streaks of the lightning itself, but something of the distant sea view, and the masts of the coast survey schooner *Palinurus* in the foreground, relieved against the sky. We are here concerned with this interesting autograph of the lightning only as an illustration of our

subject and as proving the almost infinite sensitiveness of the recent photographic processes, for there seems to be no limit to the briefness of time in which these can so act in some degree, whether the light be bright or faint, and no known limit to the briefness of time required for them to act *effectively* if the light be bright enough.

“What has just preceded will now help us to understand how it is that photography also succeeds so well in the incomparably fainter objects we are about to consider and which have been produced not by short but by long exposures. We have just seen how

this, as we know, appears no brighter at the end of half an hour than at the end of the first half-second. In other words, after a brief fraction of a second, the visual effect does not sensibly accumulate. But in the action of the photograph, on the contrary, the effect *does* accumulate, and in the case of a weak light accumulates indefinitely. It is owing to this precious property, that supposing (for illustration merely) the lightning flash to have occupied the one-thousandth part of a second in impressing itself on the plate: to get a nearly similar effect from a continuous light one thousand



sensitive the modern plate is, and we are next to notice a new and very important point in which photographic action in general differs remarkably from that of the eye. Seeing may be described, not wholly inaptly, as the recognition of a series of brief successive photographs, taken by the optic lens on the retina, but the important difference between seeing and photographing which we now ask attention to is this: When the eye looks at a faint object, such as the spectrum of a star or at the still fainter nebula,

times weaker, we have only to expose it a thousand times as long—that is, for one second—while from a light a million times weaker, we should get the same result by exposing it a million times as long—that is, for a thousand seconds.

“And now that we come to the stars, whose spectra occupy minutes in taking, what we just considered will help us to understand how we can advantageously thus pass from a thousandth of a second or less to one thousand seconds or even more, and



how we can even—given time enough—conceivably be able to photograph what the eye *cannot see at all*.

“In the department of nebular astronomy, photography has worked an equal change. The writer well remembers the weeks he has himself spent in drawing or attempting to draw nebulae; things often so ghost-like as to disappear from view every time the eye turned from the white paper, and only to be seen again when it had recovered its sensitiveness by gazing into the darkness. The labors of weeks were literally only represented by what looked like a stain on the paper, and no two observers, however careful, could be sure that the change between two drawings of a nebula at different dates was due to an alteration in the thing itself, or in the eye or hand of the observer, though unfortunately for the same reason it is impossible fully to render the nebulous effect of the photograph in engraving. We cannot with our best efforts do, then, full justice to the admirable one of Orion on page 592, which we owe to the particular kindness of Mr. Common, of Ealing, England, whose work in this field is as yet unequalled. The original enlargement measures nearly two square feet in area, with fine definition. It is taken by thirty-nine minutes' exposure, and its character can only be indicated here, for it is not too much to say here, too, of this original, that as many years of the life of the most skilled artist could not produce so trustworthy a record of this wonder.

“The writer remembers the interest with which he heard Dr. Draper, not long before his lamented death, speak of the almost incredible sensitiveness of these most recent photographic processes, and his belief that we were fast approaching the time when we should photograph what we could not even see. That time has now arrived. At Cambridge, in Massachusetts, and at the Paris Observatory, by taking advantage of the cumulative action we have referred to, and by long exposures, photographs have recently been taken showing stars absolutely invisible to the telescope, and enabling us to discover faint nebulae whose previous existence had not been suspected; and when we consider that an hour's exposure of a plate now not only secures a fuller star-

chart than years of an astronomer's labor, but a more exact one; that the art is every month advancing perceptibly over the last, and that it is already, as we may say, not only making pictures of what we see, but of what we cannot see, even with the telescope—we have before us a prospect whose possibilities no further words are needed to suggest.

“We have now not described, but only mentioned, some division of the labors of the New Astronomy in its photometric, spectroscopic, and photographic stellar researches, on each of which as many books, rather than chapters, might be written, to give only what is novel and of current interest. But these are themselves but a part of the modern work that has overturned or modified almost every conception about the stellar universe which was familiar to the last generation, or which perhaps we were taught in our own youth.”

Thanks to the courtesy of the editor of the *Century*, we are enabled to make these brief excerpts from Prof. Langley's instructive paper.

Our veteran and middle-aged readers will be more than charmed to read it all in the *Century*, because they have not forgotten the time when photography had no recognition from scientists or artists, and when it was considered rather a disgrace to be considered a photographer. Is it not better now?

PHILADELPHIA, Feb. 8, 1887.

DEAR SIR: I notice in the PHOTOGRAPHER of the 5th inst. your reply to M. K. F. in reply to *micro*-photographs (not photo-micrographs, as you erroneously put it). These were formerly made by Langenheim, of Philadelphia, far more perfectly than any I have ever seen from any other house in the world. I have one of his making, “The Lord's Prayer,” so minute that it requires the power of a quarter inch objective with a compound microscope to read it—about 200 diameters. Yet with this very considerable magnification there is no granularity, and the letters look like ordinary print to the unaided eye. There is a party in Jameson, N. Y., who makes micro-photographs, but I cannot now recall his name.

Yours fraternally, W. H. WALMSLEY.

### OUR PICTURE.

LAST year we presented, from time to time, as embellishments in our magazine, views representing the four quarters of our great country—North, South, West, and—the View from Our Office Window. Our foreign patrons especially will be interested now in seeing some of the productions of the aforesaid quarters. They shall be gratified by the presentation of some examples of babies—subjects which so delight the whole-souled photographer, and for whom the bromo-gelatine plate was specially invented.

The first little charmer is to represent the West, and is from a negative sent us by

FIG. 1.



"A Child." By G. C. Lambdin.

Mr. E. Weller, Laporte, Ind. The airy little creature speaks plainly, from her eyes at least, the words used as title to the picture—"We are ready." She has been informed of the responsibility resting upon her of serving as a model for our magazine, and after arranging Dolly and the flowers, and, assuming her own cute attitude, she announces "We are ready," falls into a harmonious expression, and—click! the picture is ours. Many thanks to her!

The prints were made by the Photogravure Company, of New York, by the gelatin pro-

FIG. 2.



A Water Baby.

cess, and are as near an imitation of "photograph color" as can well be.

FIG. 3.



In the Woods.

Recently we have had more than usual appeals to us for "helps in photographing

children." We add a few hints, trusting they may serve a good purpose.

The greatest test of artistic patience is photographing children. For this work, sometimes the rules must be set aside. A very pretty portrait study of a child is supplied by G. C. Lambdin's drawing of one of his own paintings. The disposition of the lines is very sweet and child-like, and the lighting, though bold, such as we are usually compelled to adopt for children to secure speed. For the artist who will give the matter enough attention to procure some proper backgrounds, and with them some choice accessories, such as pertain to child-life, and then make a specialty of child pictures, there is a fortune waiting. We will illustrate our meaning by another of Mr. Lambdin's drawings, from his admirable painting of "A Water Baby."

Parents love to see their children "looking pretty," and surely they can be made to appear most distractingly picturesque in the way suggested. "Season" pictures could be introduced, and a hundred pretty compositions, by the careful practice of art principles. Mr. J. H. Niemeyer's "In the Woods" serves as a lovely example—"as pretty as a picture." Suggestions may be found in the print bazaars, in the pictorials, for children pictures all the year around.

Further urging here is useless. Attention to the little ones is a pleasure, it is a duty, "it pays."

### IMPROVEMENTS IN MAKING LANTERN SLIDES.

Editor PHILADELPHIA PHOTOGRAPHER.

DEAR SIR: The season is now on in which both amateur and professional photographers, especially the former, are engaged in making lantern transparencies, and for their benefit I desire to communicate, through your widely read journal, what I consider to be two improvements.

One tending to enrich the tone and general effect of a slide developed by the ferrous-oxalate developer, by the addition to it of citrate of ammonia. The effect of such addition is to give a brown tone, and to reduce the intensity of the portions of the subject, such as deep foliage and dark shadows, pre-

serving the detail of the same, and giving a greater clearness to the lights, and crispness generally. The second is the varnishing of the finished slide with plain collodion as a preservative of the gelatine film from the damp.

I am led to recommend this from noticing while looking over some of my early productions on my lantern A. plates, that a mist or hazy covering was on the film. Remembering, some years past, while manufacturing lantern slides by the Woodbury process, that a similar defect showed itself, I adopted the plan of varnishing them with Diamond varnish. Having tried collodion in the present instance, and found it to be all that can be desired as a preservative of the gelatine film, I strongly recommend every one using gelatine plates in making lantern slides to varnish them with plain collodion.

Last evening, at the regular meeting of the Philadelphia Photographic Society, some thirty slides were shown in the Society's lantern, made on the Carbutt Lantern A. plate, developed and varnished by the formulæ given below.

Improved developer for lantern transparencies:

A.—Oxalate of Potash . . . . .	8 ounces.
Water . . . . .	30 "
Citric Acid . . . . .	60 grains.
Citrate of Ammonia Solut'n . . . . .	2 ounces.
B.—Sulphate of Iron . . . . .	4 ounces.
Water . . . . .	32 "
Sulphuric Acid . . . . .	8 drops.

C.—*Citrate of Ammonia Solution*: Dissolve 2 ounces of citric acid in 5 ounces of distilled water, add liquor ammonia until a slip of litmus paper just loses the red color, then add water to make the whole measure 8 ounces.

*Developer*: Add 1 ounce of B. to 2 of A., and  $\frac{1}{2}$  an ounce of water and 3 to 6 drops of bromide solution.

#### Collodion Varnish.

Alcohol . . . . .	4 ounces.
Sulphuric Ether . . . . .	4 "
Pyroxyline . . . . .	30 to 40 grains.

When the cotton is dissolved, filter, and flow the plain collodion over the dry slide, the same as when using varnish.

With this communication I send you samples of slides developed and finished in the manner described.

[The slides are received, and are absolutely uniform and excellent in quality.—Ed. P. P.]

No. 1 is from a bath dry-plate negative made in 1871.

No. 2 is from a bath dry-plate negative made in 1875.

No. 3 is from a gelatine dry-plate negative made in 1886.

Yours truly,  
JOHN CARBUTT.

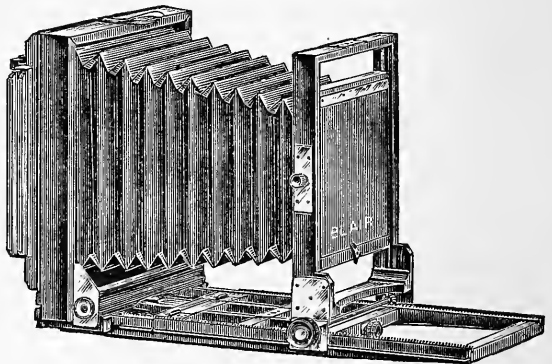
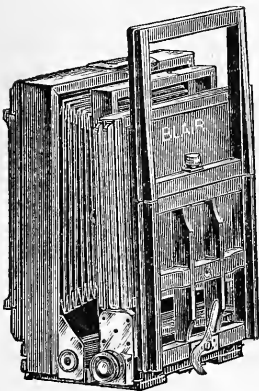
### THE BLAIR IMPROVED REVERSIBLE-BACK CAMERA.

SINCE this magazine was born there have been a great many more improvements made in cameras than there has been in pianos for musicians, paints for artists, or brains for all. The young photographer of to-day would be as little at home with one of Lewis's or John Stock's antique cameras as a western

a lever by which the folding bed is clamped in position, in less time, and kept more rigid than anything yet applied to cameras. Another feature, or improvement, is an additional nut for the tripod screw, placed in the centre of the bed, to balance the camera with a long focal lens. It has capacity for more swing, and is lighter than it has heretofore been made, but not made so at the sacrifice of any of its former good qualities. All that practical knowledge and good mechanism can supply, seems to be embodied in this admirable camera.

### QUESTIONS TO THE CRAFT.

ON page 57 of our issue for January 15th the questions below were presented to the readers of this magazine, with the hope that such generous answers would follow as would be of great service to those who have neither the privilege of neighborly contact with other photographers, or of attending the conventions and society meetings.



farmer accustomed to the mowing machine would be with the scythe of "Old Time."

Thanks for all this to the inventive genius and willing care of a few excellent apparatus manufacturers—fewer than the fingers of one hand. Among them, however, the Blair Camera Company may be considered first class.

The engravings above show, open and closed, the new Blair Reversible-Back Camera, which is a model of convenience and excellence. The latest improvement is

We have not been disappointed. A number of very full replies have come to us, which are full of interest and all of which we propose to print, part at a time, beginning with the present issue. We hope too, that a great many more will come.

#### QUESTIONS.

1. Are you making large portraits direct in the camera, *i. e.*, using a larger lens than 14 x 17, with large dry plates? If so, what is your method of lighting and manipula-

tion, and your experience as to the quality of your results compared with enlargements from small negatives?

2. Do you obtain as satisfactory results, in portraiture, with very rapid plates, as you do with slower ones?

3. What is your most successful method of development of rapidly exposed plates?

4. Have you found an increase of business and profit with the increased facilities for making large work more expeditiously, adopted by you?

5. What has been your experience, both in practical results and in the acceptance by the public, of bromide enlargements?

6. What with platinotype prints?

7. Do they increase the revenue from your stock of negatives?

8. Please detail some of your experiences in making pictures of children.

9. In printing dry-plate negatives wherein does your treatment of them vary from your practice with wet plates?

10. What variations do you make in your manipulations in cold weather from your practice in the mild season?

11. What are the prospects for the coming year?

ANSWERS.

1. The largest size head I make is six inches from the roots of the hair to the chin. The light should be stronger (that is, more curtains open) in same style of lighting than for small heads and the exposure, say one-third longer; a fully exposed plate is easiest managed during the development and should look by transmitted light much thinner than a small negative.

The quality of my large negatives is equal in all respects to my cabinet size, and they are not to be compared with any other style of producing large portraits, being far superior. I do not advocate a larger size than 22 x 28 which is, I believe, "life size." I give preference to the "Beck" lens for large work over all others I have tried.

2. I prefer very rapid plates, as I use through choice an 18-inch focus lens with No. 3 stop. I curtain down my light to get the effects I want. The exposure varies with the quality of the light; of course being never less than three to five seconds

except for babies, and generally eight to ten seconds. Slow plates would require too long exposure. I do not favor broad lighting as in wet plates, necessitating very short exposures, as that gives no latitude for developing.

3. This is governed altogether by the quickness of the plate used. I always start with a normal developer and add accelerator or retarder as required. The lighting and developing of any dry plate is the whole secret, and requires more care than any other part of the science of portrait making.

4. Yes, decidedly so.

5. I have not yet employed bromide paper but shall begin its use very soon.

8. A whole volume larger than your *Photographics* could be written on this subject. I will simply say, in this connection, God bless the man who invented dry plates. What was formerly a dread (*i. e.*, taking children's portraits) is now a pleasure.

9. As my negatives are not intense and I prefer those that are thin and brilliant I can see no real difference, except that it is not necessary to varnish them. I always print through one or two thicknesses of tissue paper, except in cloudy weather.

10. None, except in very hot weather. In the dark room I use ice to reduce the temperature. I only used twenty pounds of ice last summer. I have not had a frilled negative for two summers. I use hydrant water for all purposes. In winter I use a stronger printing bath, the same as for wet plates.

11. *Never better.*

W. C. STAPLES.

INDIANAPOLIS, INDIANA.

In answer to your questions in the January PHILADELPHIA PHOTOGRAPHER would say I have made quite a speciality of large work of all kinds for several years past.

My present rooms I have occupied for a little over a year. I bought the place, and the very first day I was there I put the prices up from \$2 for cards and \$4 for cabinets, to \$3 for cards and \$5 for cabinets, and these prices I have maintained without deviation since. I found nothing in the operating-room to suit me to work with, so I immediately set about furnishing it with everything necessary to do all kinds of pho-

tographic work. One of my first purchases was a camera and lens for making 20 x 24 direct photographs.

From the experience of several years in making large direct photographs I am led to think that the chief benefit that the ordinary photographer will receive from making them is in the increased prestige he will receive in the eyes of the public. My experience is that the public think that a photographer who can make a good 17 x 20 to 20 x 24 direct photograph can do almost anything photographic, and I am not sure but what they are about right, for what requires more skill than to make an artistically lighted and finished life size head? My advice to any photographer in a place of 5000 or more inhabitants is to get at least an outfit for making 17 x 20 negatives.

After I had been here several months and had got things to working to my satisfaction, I commenced advertising in the newspapers and also had two round front nickle show cases put at the doorway, costing one hundred dollars; these I filled with my best work including samples of my largest pictures. Up to this time my business had remained about the same each month, but at the end of the next month it had doubled, and now, ten months afterward, I am doing from three to four times as much as before commencing to advertise.

Am now advertising regularly in ten daily and weekly papers. I believe thoroughly in all legitimate ways of advertising.

Will answer your last question first. The prospects for a good business the coming year are exceedingly good, each succeeding months' business is the largest, owing, as I think, to taking the utmost care with every picture sent out and to careful and judicious advertising.

I consider an attractive display at the doorway, changed often, the best advertisement even before newspapers, but the progressive photographer wants both.

Photographers are too apt to think that good work will advertise itself. It won't do it in these days when everybody makes passable pictures, even the cheap Johns. It has got to be so now that the best business man gets the most shekels whether he be a first rate artist or only indifferent. If he

does first class work it will be so much the easier for him, but if only indifferent he will get there all the same.

Will now give you the rest of my answers to your questions. Regarding large negatives my experience is that any lighting and manipulation that will make a fine cabinet head will make an equally good life size. I take care to give a full exposure, and in developing I commence with a developer well restrained with bromide, and after high lights are well out reduce with water or pour off the strong developer and finish with a weaker solution as the case in hand may require.

In my judgment the results obtained by making large direct negatives are so much superior to those obtained by enlarging from small negatives as to be entirely beyond comparison.

Your second question is a hard one to answer. My experience is that if you have a very rapid plate that is entirely free from chemical fog—a great many extremely rapid plates have this fault—and give it just the right exposure you will get as fine a negative as with a slow plate and, frequently with more detail and softness. I much prefer for ordinary work a plate of a sensitiveness not greater than twenty sensitometer. If you give such a plate a trifle less or a considerable more than the correct exposure you can get a good negative from it, whereas with a very rapid plate unless you give it a very nearly correct exposure you cannot develop it into a good negative.

With very rapid exposures I commence development with a very dilute developer. If I find it is coming up too flat with lack of contrast, I transfer it to another tray containing the normal developer to give the high lights the proper strength, then finish in the dilute developer.

My success with bromide prints is very gratifying indeed, both as regards quality of prints and acceptance of same by the public. I find that my business is increased about one-fifth by reason of orders for bromide enlargements. I find that when made from good negatives they are readily accepted by the public without finishing, although I probably finish at least one-half of my orders more or less.

I have had no experience with platino-types.

My experience with children is somewhat at variance with that of many photographers and writers upon the subject. If they are accompanied by the mothers and a bevy of aunts and cousins, instead of keeping them all out of the operating-room with the possible exception of the mother, who is kept in the background, I allow them all to come in and they stay until just before I get ready to make the exposure.

I find that in these days of instantaneous exposures the only difficulty in taking children is in overcoming their diffidence and shyness and obtaining their confidence, and nothing tends more to that end than the fact of your being on friendly and confidential terms with the cousins and aunts.

When I am ready to make the exposure I have them all either leave the room or retire behind screens with the exception of, perhaps, the mother and one aunt or cousin, one of these I place as near the subject as possible to give it confidence, with the caution not to do anything to attract its attention; the other I have by my side near the camera. I then give the latter some toy with which to get the attention of the subject, which leaves me free to watch for and catch the best expression when it comes.

My practice, in printing from dry plates, does not materially differ from that with wet plates. I never print anything out to the open sun. Vignettes I cover with two thicknesses of tissue paper. Plain prints I print behind ground glass. I never print from a negative until it is varnished.

The only variation in manipulation from warm weather is in strength of silver bath and time of floating—ten grains stronger and float a half minute longer. I have all solutions as nearly as possible of same temperature, 60°.

W. G. HUSSEY.

SALEM, MASS.

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### PHOTO. FACTS AND FANCIES.

Two photographs of lightning by Dr. H. G. Piffard, one of which is engraved on another page, were sent by us to Mr. C. G. Busch (whose article appeared a month ago in these

pages) for inspection. They come back to us with the following answer:

DEAR SIR: I am glad you sent those photographs, especially the one with the schooner in the foreground. These prove exactly my theory.

Let me call the one where the masts of the vessel are perfect, No. 1, and the double image one, No. 2.

No. 1 was taken before No. 2, and it did not rain in the foreground hardly any, if at all, the vertical streak on the left shows the contour of the cloud, also the three streaks nearly in one point are the other edge of the cloud. No. 2 was taken so much later that the cloud advanced nearly one-half the distance since the time the first was taken, and all the impressions larger, coarser, and not so sharp, and wider apart. In No. 2 the left edge altered its form somewhat, but happily the right edge, the principal streak is almost exactly alike in both photographs. I mean the heaviest in the cluster of No. 1. In No. 2, of course, the same edge is nearer, and ought to be twice as long. Now follows the streak of the longest line in No. 2, and the principal one in cluster one, and the contour is identical. No. 2 does not show the very upper part, but commences from the first bend to the right.

I hope you see what I mean, if not, write again. I did not want to mark on the photographs, otherwise I would have marked the lines.

Photograph No. 3 I don't think was in focus, or a sheet of rain interfered. That streak of lightning must have been at least twenty feet wide; just look at the distance, and how much space it covers; so don't let me say anything about it. But a white edge of a cloud could probably give such a broad reflection.

In No. 1 the rounded line on top to the left, also tells the story so plainly, that I must say the actual lightning is not photographed in these pictures, and show very finely what is usually to be seen, but not the actual lightning.

The one engraved is called No. 1 by Mr. Busch.

We hope for some further discussion of this interesting subject.

A GOOD SOUNDING CARD.—I desire again to express my thanks to those who have been my patrons during the past year, and to promise them *better work* for the next year. I have chosen my avocation—have thrown myself into the vortex—and my “Battle of Life” has begun. “Whatever is worth doing at all is worth doing well,” and I shall spare no pains and rest not till I shall have won for myself a place among “THE BEST.” I consider the past year successful, not merely from a financial standpoint, although the business has steadily increased until it is now *more than double* what it was a year ago, but rather because I can see a great improvement in my work. My ambition is *not* to make a fortune, but to make the gallery a credit to the town in which I live. I shall, in the future, make a specialty of large work and life-sized portraits, as I find myself most successful with pictures of that kind. Yours respectfully,

CHARLES BUTTERWORTH.

Gallery over Clinton County Bank.

THE site of the ancient Egyptian city of Zoan, often spoken of in the Bible, and which Ezekiel prophesied would be destroyed by fire, has been found, and is now undergoing examination. Many interesting discoveries have been made which will still further elucidate that Egyptian life and history of which already we have so full an account. A curious find is that of the house of an amateur artist of the ancient world, whose studio has been examined, and it is found that he was as nice in the choice of his implements as modern dabblers in the fine arts always are. He had a very fine palette of limestone, ground perfectly smooth, with twelve little depressions to hold his colors. These he used only in a liquid state. His palette knife was made of silver, highly decorated by engraving, and the little jars to hold his paints were of the finest glazed ware. Specimens of his own work were found, but they were very poor, while his collection of bric-a-brac, including bronze figures, glazed pottery of various makes, and delicate glass objects of different sorts, was very fine. He owned a plano-convex lens, and he had almost the only specimen of ancient painted glass yet discovered. In

fact, an artist's studio of the olden time seems to have resembled an artist's studio of the present day in this at least, that the more show was made the less work was done.

### A FINE TRIBUTE TO THE AIR-BRUSH.

As a worthy recognition of a worthy and useful invention we have pleasure in printing the report of the Franklin Institute, just received, upon the excellencies of the Air-Brush. It reads as follows:

HALL OF THE FRANKLIN INSTITUTE,  
PHILADELPHIA, August 30, 1886.

The Sub-Committee of the Committee on Science and the Arts, constituted by the Franklin Institute of the State of Pennsylvania, to whom was referred for examination the

AIR-BRUSH

of the Air-Brush Manufacturing Company of Rockford, Ill., respectfully

*Report:* That after an examination of the instrument and its uses, they regard it as deserving of the warmest commendation. The application of the principal of the air-brush to a tool for distributing liquid pigments on to paper or other surfaces in the production of pictures, is a great novelty in the arts, and as important in its economy of time as it is novel. In the hands of an accomplished draughtsman, it is an acquisition of rare value.

Of course, this instrument cannot make up for any deficiency of artistic skill in the operator, for, as much proficiency in drawing practice is necessary with this as with any other of the pencils or brushes heretofore used. What is chiefly claimed for it by its inventor is, that it facilitates his work by shortening greatly the time consumed in the execution, and that it is more durable than crayon or pastel when used in imitation of those styles. Artistic displays of freedom of touch can readily be added over the finished work of the air-brush by those who prefer to do so, and still the work will appear homogeneous in method of execution when the same pigments are used in both cases.



One of its merits, is that the tints laid on by means of the air-brush possess the advantage of appearing equally well whether the light falls on them from one side or the other. This is not the case with tints made with the crayon, as is well known, for the reason that the toothed surface of the paper gets more completely covered on the side toward the light than it does on the shaded side, consequently, a drawing that appears smoothly finished in the light in which it was drawn, is apt to look rough and coarse when viewed with the light falling on it from the opposite direction. The reason of the difference is obvious—the air-brush throws the color directly down into the pores of the paper, covering equally both sides of the projecting tooth of the surface, so that naturally the work looks well in whatever light it is shown.

The manner in which the air-brush delivers the color to the paper may be described in few words, thus: the artist supplies liquid color from a brush to a spoon-like reservoir. Through this liquid a fine needle darts rapidly back and forth, its wetted point being carried forward beyond the edge of the spoon. A strong current of air blown against this needle's point carries off the small amount of color adhering to it in finely divided particles, thin and fine at the point of departure, but widening out as its distance increases. Hence, if the instrument is held near the paper, it will make fine lines, when moved as in writing, but removed to a distance, it will make broad, soft tints with gentle blendings. The greater or less length of stroke of the needle, as well as the current of compressed air playing on it, is all the time completely under the control of the artist by action of his thumb while working, the supply of air to the chamber being pumped in by action of his foot.

We have only to add that this remarkable invention is an important aid to the artist, and we believe it deserves the highest award that the Franklin Institute has in its power to bestow.

JOHN SARTAIN,  
*Chairman.*

JOHN CARBUTT.

Amended to incorporate the award of the Elliot Cresson Medal, and as so amended adopted.

H. R. HEYL, *Chairman.*

## THE WORLD'S PHOTOGRAPHY FOCUSSED

BENZOLE is one of the most useful chemicals in the working-room of the photographer, but its odor renders it very disagreeable. It appears that this odor can be removed by using plumbate of soda which is obtained by dissolving oxide of lead in caustic potash and afterward rectifying.

THERE are already many antiseptic substances used in photography for mounting prints, preserving emulsions, etc., and here is still another, which, it is said, possesses superior properties. Lazolic acid is superior to all the other known antiseptics. It is acid but does not possess the corrosive action of carbolic acid. It can arrest absolutely all fermentation, and for this reason is very useful to mix with any substance used in fixing prints on their mounts, starch, flour, paste, etc. This new agent possessing acid properties, and the question arises if it can be used without danger in mounting silver prints; naturally it is admirably adapted for paste used for other purposes. Speaking of its acidity it may be well to recall the fact that the gum often used in retouching prints may become acid after a lapse of time. This tendency is not so great when the gum is dissolved in very cold water instead of hot water, as is usually done. Made with cold water the solution will keep for several weeks, whilst with warm water it will change in a few days. If photographs are to be kept free from change they should not be exposed to the action of the air.

A NATIONAL exhibition will take place at Toulouse, France, commencing May 15, 1887, and ending October 15th. The class of the second group comprises everything pertaining to photography; prints, apparatus, appliances, chemical products, etc.

A CONGRESS of astronomers will shortly be held at the Paris observatory. It is Ad-

miral Monchez who has taken the initiative of this assembly, and he has already received the acceptance of all the directors of observatories not only of Europe, but of the whole world. The purpose is to reconstruct in common the chart of the heavens based upon the so curious discoveries of photography applied to astronomy, and of which the greatest honor reverts to France.

PROF. WILLIAM HUGGINS formally announces the apparent failure of his method of photographing the solar corona without a solar eclipse. The plates, taken in England about the time of the eclipse of May 6, 1883, presented, he says, not only a general resemblance to those taken during the eclipse, but showed a remarkable rift, which was the main feature of the corona as photographed at Caroline Island. In the eclipse of August 29, 1886, Dr. Gill, of Cape of Good Hope, found that the plates did not show "the corona cut off partially by the moon in its approach to and passage over the sun." Hence, while expressing inability to explain the early favorable results, Huggins states that the method "would seem to have failed."

AN English paper says Councillor W. J. Lancaster of Colmore Row, London, has a very remarkable photographic apparatus, to be used for detective purposes or ordinary portrait photography. The apparatus is enclosed in a watch case, which opens in the ordinary manner by means of a spring. As the case opens, a miniature camera shoots

out for a moment, shuts up again, and the thing is done. The sensitive plates to be used for the camera are miniature dry plates, and a store of these is to be carried by the operator in a specially prepared locket to hang on the watch chain.

THE ROYAL POLICE BUREAU in Berlin calls the attention of the police authorities in other cities to the fact that, in order to facilitate the comparing of photographs with those in the rogues' gallery of this year, a greater uniformity than hitherto in the pose and treatment is highly desirable, and recommend the taking of the respective bust portraits in three-quarters profile, so that the left ear be always plainly recognizable. It has been noticed that, although in the course of years the features greatly change, the ear, as a rule, retains its form; besides, there can scarcely be two persons found whose ears are formed alike. The circular mentions, also, that touching up the photographs is decidedly to be avoided; it may embellish the picture as such, but it interferes greatly with its resemblance.

CAREFULLY made experiments at the University of Pennsylvania, conducted by Professor Barker, have shown that some of Mr. Muybridge's photographic exposures were made in periods of time varying from the one two-thousandth to the one five-thousandth of a second.

THE Chicago Convention will be held from the 9th to the 12th of August.

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## Editor's Table.

MR. XANTHUS SMITH'S black and white "On the Pennypack," which, our readers will remember, was in the July 17th issue of this magazine, and was one of the finest pictures in the year, has had the further fame of foreign reproduction. It was published in a late number of the German *Photographisches Archiv*, with a translation of Mr. Smith's article, and some very flattering comments upon the picture from the pen of Dr. LIESEGANG, the editor of the *Archiv*.

THE Chicago Lantern Slide Club is vigorously starting out on what promises to be a prosperous existence, and lately held a meeting and exhibition in the hall of the McINTOSH GALVANIC AND FARADIC BATTERY Co. We congratulate the Club in having in their Secretary, Dr. JOHN NICOL, the right man in the right place.

MRS. FITZGIBBON-CLARK has sent us a new periodical, the *Canadian Photographer*, of the

same make-up as the *St. Louis Photographer*, and having all the excellences of that journal. There is a field in Canada, and we wish our new contemporary all success in it.

MR. GEORGE PINE, Trenton, N. J., sends \$6.50 for PHOTOGRAPHER and *Times*, and says, "I have never reduced prices." Good. That is because good journals taught him better.

MR. A. D. FISK, 26 Beekman St., New York, follows an excellent idea in offering all apparatus and accessories for an evening's lantern entertainment, supplied together. Mr. Fisk also makes slides and transparencies, and can be commended as a most skilful and intelligent operator, both of the lantern and of the tray and bath.

We were pained to learn the death, on January 22, of Mr. J. A. PUGH, of Macon, Ga. Mr. Pugh was an old-time photographer, and had, moreover, been a subscriber to this journal from its first year. Only a few weeks ago he sat in our office, looking in splendid health, and talked with us of the art he loved, showing us some of his pictures. Only in our last number we noticed these. His death was quite sudden. He was never married. We need hardly speak of his skill and business ability, which were eminent. His personal qualities made him very many friends, who will feel, better than we can say, what he was.

A GOOD EXAMPLE.—Our friend Mr. B. F. SAYLOR, of Lancaster, Pa., writing us, mentions how his library is growing. "Though I cannot perhaps say as much as some subscribers of THE PHILADELPHIA PHOTOGRAPHER," he says, "still I have in my possession Vol. I. No. 1, and from 1867 to date, each year nicely bound alike, and in a book-case specially devoted to them. It is growing into what I call my 'reference book-case,' as I have two other cases filled, and enough books to fill another." Emphatically, the reading photographer is the rising photog-rapher.

PROF. C. E. MYERS, Mohawk, N. Y., wants these numbers of the *Magic Lantern* to fill his file: January, February, May, 1878; March, November, 1879; July, August, September, 1883. Any of our readers having duplicate copies can get a fair price for them by writing him.

M. LEON FAVRE, of Paris, called at our office recently, and showed us some examples of what are, without doubt, the finest enamelled photographs that have yet been made. The prints are enamelled by a special process of his own, which he has come here to introduce, and the results surpass anything of the kind hitherto seen. The gloss on them is pure, soft, and white, and has nothing either of the glittering opaque hardness or the bad tones of most enamels. The picture treated thus becomes really beautiful, reminding one even of the splendid ceramic enamels.

M. Favre assures us that his process can be applied to any print, from cards to portraits 20 x 24, and the result is permanent. We can confidently call the attention of the craft to this process as something new and worthy of attention. It ought to help many of them to raise their prices, at present so low, for it is a novelty that is sure to take; and at the same time it will greatly add to the attractiveness of their work. M. Favre's advertisement and price-list will be found in another column.

PICTURES RECEIVED.—From Mr. J. A. SHERIFF, San Diego, Cal., come some very good landscape work, of scenes around that town. Some of his seashore views are very good, indeed, and one of little girls in the breakers, called "Sea Nymphs," quite a gem. Mr. A. H. PLECKER, Lynceburg, Va., sends us some portraits of a woman posed in white drapery, after the manner of Mr. GUERIN's "Meditation." His background of curtains lacks simplicity, but his light and the clear whites of the picture are very pleasant and effective, and his arrangement of drapery excellent. Wonders in the way of moonlight views will never cease. Mr. D. BACHRACH, JR., of Baltimore, has made an 8 x 10 that is quite a marvel, with houses and trees sharper against the snow than some daylight views we have seen. He used a SEED plate, No. 3 Euryscope lens, 3d stop, two hours exposure. It is really a grand picture. From W. H. WALMSLEY & Co., of Philadelphia, come a series of pictures made by a detective camera, fitted with a BECK autograph lens. They speak extremely well for the lens, for we have among the pictures architecture, animals, some very trying riverside bits, with bridge and rigging, besides the ordinary street pictures; and in all there is the same clean, sharp work, correct drawing, and splendid definition. Very good work, indeed, that lens did, of an all-around character, and it deserves praise for it.

THE fine old Photographic Society of Philadelphia, which is incorporated, has had its charter and By-laws printed and bound for the use of its members. It starts on the twenty-fifth year of its successful course with a list of members that covers five pages, and among whom are names like GUTEKUNST, CARBUTT, SARTAIN, G. B. WOOD, IVES, and many others who are beginning to be heard from. In fact, it can show a roll and a record that are equalled by very few. We heartily wish it increasing growth, success, and usefulness.

THE A. M. COLLINS MANUFACTURING Co. send us their 50-page price-list of photographic card-stock. The craft owes them many thanks for their enterprise, not only in getting out so many samples of various kinds of mounts, but also for preparing such a convenient and very comprehensive price-list. The working photographer will do well to write for the list; for, besides containing every possible sort of mount he may need for ordinary work, he will find in it many novelties, some of which may help him to new trade. He will do better still to order from that catalogue, for he will be thus assured of getting the best attainable stock for his money, and will be dealing with a thoroughly reliable firm.

THE amateur photographers of St. Louis have formed an Association, engaged rooms in the Merchants' Exchange, and start on what we trust will be a prosperous career.

THE Camera Club of Portland, Oregon, has, we are sorry to learn, fallen into "innocuous desuetude." We trust it will wake up with the spring.

MESSRS. BUCHANAN, SMEDLEY & BROMLEY send us an envelope that is like a prize package. It contains circulars of black paper for transparencies, the rapid RIPLEY plate; new backgrounds; FRENCH's foregrounds and lubricator; postal board, cloth backed, for sending prints by mail—excellent—THE PHILADELPHIA PHOTOGRAPHER; WHITE's photographic head-screw; samples of vignetting backgrounds; a tag to send silver wastes by; price lists of enlargements; and the February bargain list. It is a good deal, but we are heartily glad they have so much to say, and our readers will find them well worth listening to. Their plump envelope

will prove a prize package, indeed, to many a photographer who finds they have just what he wants.

OUR readers will notice in another column mention of Dr. HENRY BYK's pyrogallic acid. It is endorsed both by Dr. VOGEL and Dr. EDER. The former says, "It fulfils every want of the practical chemist or photographer;" and the latter, "The negatives developed by it are clear and strong, and without yellow tint. Comparison proves it to be unsurpassed." Mr. G. GENERT, New York, is the sole agent.

MESSRS. G. A. DOUGLASS & Co. have a useful article in ESBACH'S Hand Cleanser, which is put up in jars, and is warranted to be entirely harmless and very efficient in removing silver stains.

MESSRS. LEWIS BROS., enterprising young photographers of Great Bend, Kansas, write us of *Photographics*, "It has been of great help to us. We have read it through carefully, and refer to it almost every day. There are a good many things in our gallery that would tell one we had it." It has made them dissatisfied with their skylight, and they are about to build a new one on plans furnished by the book.

MESSRS. WILSON, HOOD & Co., are now settled in their new quarters at 910 Arch Street, Philadelphia, where they hope to do even better than they have in the twenty-two years of the firm's previous existence. They have a large and commodious store, and a fine stock, containing everything necessary for the complete outfit of amateur or professional. They have just received a consignment of the famous ROSS lenses, of which they are agents, including the Rapid and Portable Symmetricals, and will hereafter be able to fill all orders promptly. We wish them much success in their new location.

THE SCOVILL MANUFACTURING Co. have just issued a new edition of the *American Annual of Photography and Photographic Times Almanac*. The success the *Annual* has met with has been great, and it has won most favorable opinions everywhere. It has been an undoubted success, and the new edition will, without question, be rapidly bought up by eager followers of the craft, most especially those who are amateurs. Not one of the latter should be without the handsome *Annual*.





SCHULZ & SUCK,

KARLSRUHE.

GERMAN GEMS.

AWARDED A GOLD PRIZE MEDAL AT THE ST. LOUIS EXHIBITION.

THE

# Philadelphia Photographer.

EDITED BY EDWARD L. WILSON.

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## BEAUTY OF POSE, PROPORTION, AND FEATURE IN PORTRAITURE.\*

BY HUGH BREBNER.

My wish to-night is to supplement with a few notes bearing on "Composition," a paper which I had the honor of reading here not long ago, in which I dealt with the disposition of light and shade without any special reference to form.

In an old French book upon Art, whose title and author I have long since most ungratefully forgotten, I remember reading a few chapters upon portraiture, in which likeness of pose, likeness of proportion, and likeness of feature were emphasized—in the order I give them—as the three chief desiderata in a good likeness. As the work to which I refer was written long before photography existed, and was read by myself when studying the rudiments of painting, I at the time saw little in the rules laid down, save that the characteristic action or pose of the subject should be broadly and thoroughly realised mentally, before beginning to "block out" the proportions, and that this broad massing should in turn precede any elaboration of feature or detail. I was satisfied then of a fact which I had vaguely realized before, namely, that it was folly to begin by working from one feature to another in the hope that all would come right in the end; but it was not till I had taken up the art which we all mutually

pursue, that I fully understood the importance of a large preliminary view, for it was only then that I realized that, in selecting and emphasizing what he considers the beautiful, and at the same time ignoring or subordinating what he looks upon as ugly, the power of the photographer is comparatively limited. When he makes what he acknowledges to be a mistake through forgetting that beauty, "grace, and, we may add, the likeness, consists more in taking the general air than in observing the exact similitude of every feature," he cannot rectify it save on a *rasa tabula*. Still I do not see why the monochromatic "studies" of *mens* and lens should not please the beauty-loving eye better than the objective attempts at realism made by such of our brothers of the brush as have not yet found out wherein photography is capable and wherein incapable of taking the ground from under their feet. Setting aside color, and tone implying color, and also technique as referring to the visible evidence of handicraft, it will be found, I think, that the principles upon which the beauty of a single line is determined are applicable to every phase of criticism to which a picture may be subjected on its own merits.

To justify this statement and thereby make my meaning clear, I would remind you that without light and shade together no form could be visible. Though what we know to be true where form exists in absolute darkness, would be equally true were everything of the same brilliance. For instance, the form of the sun is lost to sight

\* Read before the Edinburgh Photographic Society, January 5, 1887.

when the sky in the zenith is so bright as to dazzle our eyes. Since under such conditions we can have no visible form, we can have no apparent line. For, popularly speaking, a line is simply an empirical term applied to designate the impression of form conveyed by the interference of one density with another, under certain conditions of illumination. In this way we talk of the line of the horizon, a line of smoke, a line of soldiers, or a line of houses. It is only in this sense that we can speak of a line as visibly existing in nature at all. If the conditions obtaining here are equally to be applied to their artificial presentment on a plane surface, as I think they should—for what is a line of smoke beyond a charcoal line—then, if we let a drop of ink fall on a piece of white paper, the blot will give the “line” of Euclid better than another drop which instead of having been allowed to fall has been regularly led over the paper with the point of a pen so as to copy the outline of the form assumed by the blot. Therefore, if when we speak of a line we acknowledge that we speak arbitrarily and refer to what may be termed a cross between an invisible line and a visible superficies, or in other words, as that which has length and breadth, and is visible, we would still have to acknowledge that the blot defined its own form and extent better than the copying outline, for in the outline we would have to decide whether it was its inner edge, its centre, or its outer edge which limited the magnitude. If Euclid’s line be looked upon as the line of demarcation of two superficies, then the outline must necessarily cut off a portion of both or either. So, in everyday parlance in speaking of a thick, or even of a thin line, we refer to that which has breadth, and is not, therefore, the line of Euclid. And if we employ the term a “very thick” or a “very broad” line we may be asked whether we would consider as a line at all a very short line drawn with a very broad pencil so as to form a square. And if we were to reply that a square mark was not a line, and a fresh mark were made by a still shorter stroke from a broader pencil, what would we say then? Are these marks lines, points, or superficies? What is a line?

Now, as I want to talk about art and not about mathematics, and am wishful that you follow me, I will ask you, for my argument’s sake, to allow me provisionally to define a line as any mark whereby more or less isolated and fractional form is visibly indicated, a compound line being a series of salient and somewhat dis-jointed marks. Here is a line which you may call a point or a full stop; I call it a distant star! Here is a line which you may call an inverted comma, and here are two lines which you may call a couple of commas on the loose, but which I call a gull. In the same way, if I had a piece of paper, a drop of ink, and a trifle more skill than I have, I might draw for you that which I might call a line, but which you might call a negro’s head; and, however we differed about the success of the delineation, you would confess that if the centre of my blot were so erased as to leave only an outline, the form of a head would be no better conveyed, and the idea of a black man’s head by no means so well.

For these reasons and because of the more comprehensive grasp of the subject of this paper which such a conception will promote, I must seriously ask you to consider as a line every simple single mark which I may put upon this blackboard. And since the board is longer than it is broad we may begin by looking upon it as a broad black line. Those of you who have any acquaintance with the question of whether form is best indicated by a pure outline or by a line thickened in part to indicate shadow, will readily pardon me for taking this method of treating my subject.

Composition, disposition, and pose, differ only in degree. They all mean arrangement, and the first mentioned includes all the rest. Composition will not allow us to deal with the position of a man as a thing of legs and arms, save after we have determined the disposition of himself and his surroundings with regard to the shape of the enclosing space wherein he is to be posed or placed. Neither will it allow us to deal with the direction of any curve or line of direction or leading line, no matter how important, until we have roughly settled the disposition of the masses of light and shade which I wish for the time being to call prin-



principal lines (points or regions) of position. But in so far as the supposition of the existence of the smallest line gives rise to many points, so inversely from the multiplicity of these lines of position there is formed at last one line of direction, the principal line of all. With it then, for the reasons given at the outset, we have first to deal.

But let us see that we have thoroughly realized its existence. The eye involuntarily goes straight to the region of greatest contrast, and where a number of salient patches of strongly contrasted lights and shadows congregate, there must the eye wander. If these patches (lines of position) are all approximately of the same brilliance, size, and shape, our glance roams restlessly to and fro in search of some point of attraction greater than the rest, and if none be present, which will possibly be the case where the lines of position have been allowed to fall at random, it will seek to discover some constellation, and having found one, will then go jerking backward and forward among the points like a weaver's shuttle, laboriously and vainly striving to gyrate among them instead of dashing about like a newly caged bird struggling to escape.

Though somewhat mixed, this metaphor allows us very easily to form an idea of the different way in which the eye will be affected by a picture of a nice clean long straight broomstick, standing erect, as opposed to the feeling produced by the contemplation of an oriental willow-wand reposing.

Possessing some thought which he deems worthy of being embodied in a picture, the first aim of the artist is to subordinate the brilliance, size, and shape of the lines of position and direction so as to admit of the formation of one leading broad, irregular, and somewhat disjointed curve composed of them all.

His next thought is where in the space he has allowed himself he shall place this curve. This he will determine by the place in this principal line of direction occupied by the principal line of position, which must be that possessing the greatest contrast, in portraiture the head, or a part of it, and by its salience, considered in relation to other points of minor interest. This line he places near the centre, and to the right

or the left, as the exigencies of the occasion may require, but always above the centre. How far above will depend upon how much of the body is seen, and whether an arm forming a line of direction, or affording a line of position in the principal curve, rises above the head. In dealing with a bust, for the same reason, where the face, the principal line of position, is fronting the spectator, there will be little variation in the amount of space on either side, but when in profile the additional attraction given to the eye necessitates a greater amount of space in front of the face than behind the head; this is simply equivalent to placing the principal line of position where it was before. In the same way, if the face is looking in one direction and the body is turned in another, the principal line of direction will suggest a curve like that of the letter S, and the entire head will again be brought nearer the principal line of direction (S) to occupy its true position in the enclosing space.

Parenthetically, since I have made use of one letter of the alphabet, I may as well give a list of the letters and figures which, classed according to their suitability and want of suitability to form principal lines of direction, I once drew up in illustration.

1. Suitable types :

G Q J S, c s g a e t f, 9 6 2 5 3 & ?

2. Unsuitable types :

T X K E L I O, 8 4

The remaining letters and figures are either repetitions of those already used, are inapplicable as tending to confuse, or else, like A V W and M, imply a treatment of composition foreign to that in hand, and, to my mind, less simple (I refer to the pyramidal scheme). The sign indicating the bass clef in the musical staff is perhaps the most suitable of any, and the sign indicating the treble is certainly the most beautiful. As I have stated that the arrangement of the disjointed principal line of direction, its relations to other minor lines of the same kind and to lines of position, can be inferred from the fundamental laws which define the beauty of a single simple line, I will postpone further consideration of the most suitable curves it may assume till I come to

touch on beauty of feature. One fact of extreme importance should, however, be noted, the principal leading line must, absolutely must, return into itself, *e g c & s*. The human ear affords the most perfect example of all, however.

The artist who illustrated "A Trip to Blunderland" showed me one day a piece of paper covered with attempts to fulfil the author's wish and to illustrate the entry of some character—a herald, I think—as "a point of interrogation!" I have not seen the book, but if the finished design is as clever as the sketches were, I will back that pose against that of a man standing at "tention!"

After the curve of the principal line has been determined—by means of the disposition of the arms, hands, etc.—it remains for the artist to decide whether he will keep his composition simple, or enrich it with a secondary line, subordinately repeating the first in some region further removed from the centre. If the design is to be enriched, then, "though to a principal group a second or third be added, and a second and third mass of light, care must be taken that these subordinate actions and lights, neither each in particular, nor all together, come into any degree of competition with the principal; they should merely make a part of that whole which would be imperfect without them" To suit my present purpose, I would read "leading lines" for "groups," and "contrasts" or "lines of position" for "lights." And, where such embellishment is undertaken, the utmost care must be observed that the minor details of the subordinate schemes do not clash with those of the first. The principal line of direction should originate not too far from the centre, sweep in a "fine" curve toward the margin of the enclosing form, and return to itself at some little distance from the point at which it commenced. The chief point of interest, as I have said before, may be situated anywhere in this line, which should never be allowed to get out of the picture, nor even to touch its margin at any point. In a full-length portrait the body and arms will form the thickest part of the line in a manner I shall shortly indicate, and no secondary curve of direction must cross the

first at right angles, even when comparatively subdued in emphasis of light and shade; and in this case also it must not be allowed to run parallel with the principal line. Minor lines of direction may cross and coquette with the leading line as much as they like but, in nowise must they interfere to prevent its asserting itself as *the* subject of the picture.

Thus we see how pose is determined by the first requirements of good composition. But, having roughly estimated the relative positions of our principal points of attraction with regard to our boundary lines, and decided as to their relative values of light and shade with regard to each other, there still remains for us finally to determine the position and aspect of the details, regulated so far by what we have already done, but which have to be modified more or less—but generally more—by the incapacities or imperfections of our subjects. This involves a partial rearrangement of almost everything; and, depending as I have said, on the individuality of our models cannot at any length be touched upon in this paper.

Study the human figure. Avoid overcrowding and false accentuation as much as flat surfaces and empty uninteresting spaces. Mark, above all, the exquisite unsymmetrical balance of the human form. See how one line of position alternates with two lines of direction, and *vice versa*. Note the excessive difficulty in ever getting two parts, which in nature are the same, to assert themselves with equal force at once. Look at the utter absence of sharp angles, of right angles, of straight lines, and of perfect circles in nature. Since the forehead surrounds the eyes, the cheeks, the nose, the jaw, the mouth, and so on, I infer that a comparatively clear expanse should be allowed near every point of interest. This expanse may indeed be without limit if the point of interest is to be looked upon as an isolated fact, and together with the absence of angles between the subject and the bounding lines, which such a treatment implies, affords the best explanation of the exceptional beauty of a picture whose subject is entirely within the canvas, and also of a vignette which imperceptibly fades into nothing. On the other hand, this expanse

must be carefully limited where the subject is to be considered as a compound one, as in the case of an historical picture containing many figures, or a portrait embracing a head and two hands, where each point of interest forms a line of position having a very intimate relationship to the others, when too much consideration cannot be given to the lines of direction which bind them to each other, and determine the beauty of the curve which I have called the principal or leading line of the entire picture. For this reason it is that we insist that the dress must be intermediate in tint between the brilliance of the high lights of the face and the shadow of the background, or, as in the case of a vignette, be intermediate in contrast as compared to those of the head, for it is by such treatment alone that we can ensure a broad, swinging, leading line to the entire composition. It is for this reason too that we do not allow any point or line of importance to impinge upon any bounding line, and thereby to add a false quantity to the concrete design, nor permit of the exit of any leading line of direction at a right angle to any of the lines enclosing our subject, unless we cannot possibly help it, as is the case where we have a three-quarter length figure of a man standing. This it is that determines that a mountain shall not be cut off either at its base or at its summit, and which suggests that a figure is better cut off in the middle of the chest, thigh, or leg, than at the chin, waist, knee, or toe. Lastly, it is this that forbids of an akimbo elbow to just touch a bounding line, thereby to form a "K," or will not allow a pronounced line of direction to bolt out of the picture exactly at a corner, and thus to suggest a series of radiating lines, V, foreign and antagonistic to the design.

The power justly to criticise a work of art, chiefly in its broader aspects, is, I think, as rare as it is important, else the scarcity of truly beautiful compositions would be less. Generally speaking, if a picture be not absolutely faulty, the absence of beauty in the composition is entirely overlooked, and the eye allows itself to be cajoled by mere beauty of detail. A better judgment insists, however, on first of all deriving

pleasure from the entire effect, as composed of a mass of flowing curves, composed of masses of light and shade, existing utterly independently of their subject-matter. From this point of view, a very beautiful picture may be formed representing nothing at all, and which one man may imagine to be meant for one thing and another for something entirely different. Everything to which I have referred hitherto can only appear as perfectly beautiful as possible where this is considered; and, having roughly indicated the more important points which present themselves, I may proceed to touch upon the laws which govern beauty of feature and of line.

### A LETTER FROM SCOTLAND.

EDINBURGH, January 29, 1887.

MY DEAR EDWARD L. WILSON:

BEHOLD me just returned from my late long absence at Ripon, and met now with no less than four numbers of your original and still unexcelled PHILADELPHIA PHOTOGRAPHER, as well as by your unique book *Photographic Mosaics* for 1887. What shall I ever be able to do to repay you?

Your December 4th number shows you are getting a great deal of pictorial subject out of your office window, the many telegraph wires notwithstanding. How differently one man steps from another; what proof of the increased rapidity of modern plates.

Yet your December 18th number appears to me to contract and minify far too much in its *collectanea* of many little views; but the number is saved by the charming child just out of its bath, with such lustrous eyes, by Ives's autoglyphic process.

The January 1st number has a grand frontispiece of a high souled expression of a talented lady; and though the envious postman chose to double fold that number and crack the card-board all the way up and down, the crack has fortunately passed on one side of the face.

But the January 15th number has brought over *its* frontispiece quite safe, and a splendid one it is.

Such a perfect reproduction, though by a phototype printing process, of a rich and

deep silver print; that, too, not only a more than first-class photo in its realization of a Vandyke style of treatment, but the subject so unusually ennobling to man, and inspiriting to the best instincts of man.

You name him only "The Old Fiddler;" call him rather the leading violinist at a classic concert of the greatest masters in musical competition that have ever lived! Such mind, such eye, such nerve, such refinement of feature, yet strength of character and determination of will though his hair be gray; and, above all, what a world of brain in that grand forehead. Such a man would still have been an honor to human nature, though he had never come across any musical instrument.

And then how involuntarily, yet powerfully, he testifies in this latter day for the importance of phrenology as part of physiognomy, for brain indications as well as muscular developments; and that is a crying want in these times in which we live. For look at all the plates, and all the pictures, and all the engravings of the beautiful ladies of our day, and say what has become of their foreheads, their testimony to having any brain power! Gone, as completely gone, as the leaves of the forest of years long ago. Ladies, girls, babies even, have no longer any foreheads, no more any long tresses of inimitable beauty. Delicately parted, but a species of coarse, confused wool, like the woolly hair of the negro, only of a different color, covers all their heads, and is brought down in front to the very level of their eyes, like a tangled mop or a cannibal savage's device; and this fashion has now become universal in all levels and varieties of society, in religious circles as well as the ranks of fashion, amongst servant maids as well as their mistresses; among factory girls as well as among the upper ten thousand!

For so hideous and unfeminine a method of wearing or abusing feminine hair, to have arisen, and spread in so few years over the world like a visitation of deadly plague, there must be some cruel or sufficient reason. Do you ask what it can possibly be? You need go no further to see what it is than Plate III. of your own *Mosaics* for 1887; not in the photographic method, of course,

but in the subject represented, who is an illustration of whence all the mischief began. For the following was the imitation that has produced the lamentable evil the artistic world now groans under.

The young men of these times, tempted too surely by the very evil one himself, have taken to the originally feminine fashion of parting their hair smoothly on their foreheads, and combing it down steadily on either side, and even growing it so long as almost to require ribbons to tie it up behind.

Wherefore the young ladies of the age have risen in opposition with a virtuous indignation, and rather than let the distinction of sexes implanted by God at the creation of Adamic man be confounded in so important a particular—they have invented a totally different fashion for themselves—dreadfully ugly, almost debasing, yet anything to be different from the young men around them; so with a terrible resolve, and more than woman abnegation of self, they have cut right away their once long, flowing hair, which God intended to be the glory of woman, not the shame of young men, and exhibit now only a short stubble growth all over their heads, twisted and deformed, as if by years of persistence in sack-cloth and ashes.

Who then will not allow that the young ladies of the times are entirely justified. They are most nobly; but, alas, they have injured themselves, and the world at large has lost one of the most beautiful features which once adorned all its civilized society; while photography in general, and your *Photographic Mosaics*, Plate III., in particular, show that the culprits in the business are the conceited young men of the time.

What a contrast to them is the "Old Fiddler" of your PHILADELPHIA PHOTOGRAPHER of January 15th. His head, to theirs, might be that of an archangel, so calm, so stern, so manly, so judge-like. Oh! that he might have the judging of these young men at the last day. At all events, if they are Christians, let them, while there is still time and opportunity, read St. Paul, in Holy Scripture, on what is decorous for men on one side and women

on the other, touching their modes of wearing the hair which God their Creator has given them.

Yours, truly,

C. PIAZZI SMYTH.

## PHOTO-ENGRAVING AS A "SIDE SHOW" IN PHOTOGRAPHY.

AN ANSWER TO L. A. B. IN LAST ISSUE.

BY D. BACHRACH, JR.

THE question of L. A. B. in the last issue of this journal, asking for details of the photo-engraving and relief processes, so he can make a few extra dollars by it as a side show, indicates only one of the fallacies innocently entertained by many of our craftsmen, and if I can aid these misguided men either in putting them on the right track to make that their sole life-long business or to utterly dismiss the idea (the latter the best in most cases), it will do them a better service than they are evidently aware of. I can speak from positive, costly, experience; in fact, I have never attempted to write upon a subject without having gone into it practically, and I have been all through the mill of "side shows" of every kind, and twenty-five years of experience has led me gradually into *narrowing* instead of *widening* the number of branches of photography to practice professionally.

If my unknown friend L. A. B. will buy Prof. Husink's work on *Heliographie in General*, he will get about as much practical knowledge on the photo-relief and etching processes, as a book can give him. If he can get hold of one of the numbers, published, I think, in 1878, of Walz's *Rays of Light* (since "gone up" as well as all his other serial publications for subscription) he will find my article on the "Levy and Bachrach" process, which cost us years of toil and experiment to perfect, and he will get as complete a knowledge of a *practical* method as a single article can give it. The article was copied into the *Scientific American Supplement* shortly afterward and may be found in that. It is as exact and reliable as I could make such an article. But, I advise him, as a friend, and it will save him hundreds of dollars, as well as

days and nights of anxiety, to go to the Levytype Co., of Philadelphia, who will, for a reasonable remuneration (provided he will take the necessary time) give him all the instruction that one of the most complete and thoroughly equipped establishments in the country can give, and Mr. Levy will keep nothing from him that is known of the *gelatine relief* process. But I warn him that if he thinks he can go into that branch as a "side show," as he seems to contemplate, he will only lose his money and perhaps his hold on his present business, as the many deluded licensees of the "Artotype" and other processes can testify. The delusion consists *not* in the processes but comes from the false representation that they could easily be incorporated as a part of the daily professional photographer's practice. Mr. Gutekunst is the only professional photographer who practices one of the mechanical processes (Phototype), and he has virtually two separate, distinct, establishments, and each under a separate management, with a very large capital invested in the Phototype. To practice the relief process on the smallest possible successful scale will require a capital of at least \$1500 invested in plant, unless he has a stereotype establishment at hand *where they work in plaster*, not a very likely thing.

In fact, without going into details, the old story of a "Jack of all trades and master of none," will be repeated.

From mere love of experiment I spent my spare time from 1868 to 1875, the last two years in conjunction with Mr. Levy, in perfecting a practical process of photo-engraving, as at that time little or nothing of real practical value was published, and only one establishment in this country used such a process. We were both photographers. In a very short time *I did not practice photo-engraving and he did not practice photography professionally*. But I do practice the latter to some purpose, and Mr. Levy has one of the largest photo-engraving establishments in the country. And this story always repeats itself, and we have read the "hand writing on the wall" to such an extent that we are straining every nerve to contract our field and become perfect in *some specialty*. We have found that by following this path,

the "Cheap Johns" so far as we are concerned, might as well have no existence.

For fear that L. A. B. and others may not exactly apprehend the nature of the task they would undertake, I will, as briefly as possible, show the successive steps necessary, to furnish "stereotypes from photographs" etc., for newspaper and commercial work. First then, except for fine book illustration, such processes as those of Ives, Meissenbach, "Autoglyph," etc., which are reproductions from original photographs, drawings, paintings, etc., must not be thought of, as newspaper and job work is generally printed on ordinary paper, common ink, and no care taken in putting it to press, such as a fine cut requires; and, consequently, the relief in such plates being very shallow, they would come out a very sorry looking mess. Then, of course, the first requisite is a good strong pen and ink drawing, in line or stipple, from your subject. Either you must do this yourself or the services of a draughtsman, experienced in such work, must be secured, and the chances are that such a one is not to be found outside of large cities.

Next will come the gelatine relief, (after learning how to make the *right kind* of negative, a matter of considerable experience), then a plaster cast, or, as now practiced, one in a wax composition, then a matrix in plaster from the first one, then the stereotype cast in the matrix, and the routing, mounting, and finishing. My advice to an inexperienced hand is to stop at the pen drawing, and send it to any well-known photo-engraving establishment in the large cities, who will quickly send you the best possible reproduction at from 12 to 15 cents per square inch, when the size is over 8 or 10 square inches. This enables you to obtain a fair profit. The part of wisdom would be to send the whole job there, if you can make a contract for work with a good establishment. For the further benefit of intending investors in this line, I will state that every step I have indicated requires thorough experience to do it right, and no amount of explanation, no matter how clear, will be a substitute for practical experience in a well-appointed establishment. And there is a revolution now going on,

which substitutes the etching process, to a great extent, for the "swelling" process, and those who have, after years of toil and experience, become adepts at this latter branch (and they are few), are not giving it away, and years will elapse before as much is known of that method, as there is of the swelling method which has held its sway so many years.

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### EFFECT OF INSTANTANEOUS SHUTTERS ON LENSES.

BY WILFRED A. FRENCH.

THERE is, perhaps, no subject relating to amateur photography—unless it be the "best developer"—that has provoked so much discussion, as the instantaneous shutter. When the novice selects his shutter—generally one of the inexpensive "drop" or guillotine pattern—he is inclined to doubt its ability to secure a well-defined impression owing to the jar which accompanies each exposure. Upon being convinced that the dreaded vibration occurs directly *after* the exposure, he smiles with a satisfied air and departs, firmly believing that, with the only obstacle disposed of, his shutter will be a success, and the results justify his expectations. Then comes the proud owner of a Euryscope lens, who looks for something better than the bulky and inconvenient drop-shutter, and favors one of the many styles of revolving shutters, which, while possessing excellent features, has the same fault as the "drop"—*i. e.*, the exposure terminates with a perceptible jar, which is directly imparted to the lens. Another gentleman uses in connection with his valuable lens an exposor consisting of a slide with an aperture operated horizontally by the action of a strong rubber-band, after the manner of the guillotine shutter. All goes well, the pictures demonstrate the excellence of the exposor, but still there is a shock, more or less violent, at the close of each exposure. Persons who employ instantaneous shutters of the kind alluded to complain that, after a number of exposures, the inner surfaces of the lens are covered with a fine gray powder. The process of freeing the glasses of this obstruction is performed

with scrupulous care, but, strange to say, no interest is manifested as to the origin of the phenomenon.

When attending the first race for the America's cup between the "Galatea" and "Mayflower" in New York harbor last September, I had the opportunity of seeing a great variety of instantaneous shutters, attached to expensive lenses, several of which I was permitted to examine. In nearly every case the inner surface of the front lens was covered with a fine gray dust, the presence of which no one was able to explain. A few days after my return I experimented with several shutters, and succeeded without difficulty in producing the fine powder on my lens, the chemical analysis of which enabled me to determine its origin. It appears that the frequent vibrations caused by the faulty action of certain instantaneous shutters start the balsam with which the glasses of a lens are cemented, and expel the same through the lens-cell in the form of a fine gray powder. That the efficiency of a valuable lens will thus be impaired is quite clear, and, as the use of the inexpensive, but destructive, drop-shutter and other defective kinds is very general, I would suggest that shutters be adopted which can be operated without detriment to the lens. Although the perfect shutter is still to come, I favor the admirable "Duplex" shutter of Cyrus Prosch, which very properly operates *between* the lenses of the objective, and, at the same time without the jar which to me appears objectionable. The very ingenious shutter of D. W. Hoover is also to be highly commended, one of its chief merits being smooth and delicate action. Like the "Duplex" it is placed between the two lenses of the instrument. Still another excellent exposor, and one yielding an exposure of great speed without injury to the lens, consists of two hard rubber plates with symmetrical openings, which, actuated by elastic bands, are made to pass each other from opposite directions. This shutter is generally attached to the hood of the lens, and, although its position in front of the lens may be open to criticism, it is capable of producing very satisfactory results. Some of the revolving shutters too, of which there exists a

great variety, can be used with excellent effect, provided the exposing disk is constructed of light material and terminates its circuitous movement without a jar. If not attached directly to the lens, as arranged in certain well-known detective cameras, the revolving shutter, as well as the delinquent drop-shutter, may be used with impunity, as any possible "kick" will not endanger the lens. In conclusion I express the hope that every owner of a valuable lens will examine his exposing-apparatus, and if it be defective in action he will find little difficulty in procuring a device that will be free from the defects mentioned in this article.

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### NOTES FROM LONDON.

BY T. C. HEPWORTH, F.C.S.

A WINTER of great discontent, or rather discomfort has laid its icy grip upon us in this part of the world; a winter such as our transatlantic cousins have, I believe, little experience of. A copper-colored sky overhead which renders artificial light indispensable nearly all day long; under foot, dirty, slushy snow. It is cold without, and cold within—the internal atmosphere being rendered still more pleasant by the bursting of waterpipes.

I truly wish that some American, of an ingenious and philanthropic turn of mind, would come over here and teach us how to build our houses, and how to warm them when built. At present, walls are thin, doors and windows fit not at all, slates and chimney-pots topple over with the least breeze; in a word, our houses are built of cards. Every winter comes as an unexpected event might come, and we sit over comfortless grates which give no heat, and wonder why it is cold. Photographic operations are at a standstill, for sitters are too cold to sit—except over the aforesaid grates, and there is no light to take them by—even if they would venture into a studio. This is at least a comfort to the operator, for he is saved the vexation of watching the ice forming over his negative plate, as the water feebly dribbles from the icicle hanging to the tap, if, indeed, the frost has not cut off the water supply altogether.

Therefore, is it, that when I sit down with chilly fingers to write my "Notes from London," my first thought is, What the dev—eloper am I to write about? But, stop a minute, a huge parcel has been left just now at my office which contains a new kind of background. It consists of a wooden frame furnished with ready-cut mortice and tenon joints, so that the amateur carpenter can easily put it together; and a thick paper covering forming the background proper. This background is so graduated in tint, that by turning it round a light portion of it can be brought behind the shaded side of the sitters face, or *vice versa*. This is a good notion, and owes its invention to Oscar Schölzic.

I was talking to-day to a certain amateur photographer about the advantages of using isochromatic plates, and I pointed out to him how in portraiture the beautiful tones of a fresh complexion would be more accurately portrayed than was possible heretofore. He immediately wished me a curt good-morning; when it suddenly occurred to me that he was the proprietor of an alcoholic danger signal. The position was a very awkward one for poor me.

American watchmaking has now been brought to such perfection, that I hope that one of the craft will some day invent a watch for the special use of photographers. What is wanted, is one which will beat *audible seconds*. There are now so many photographic operations where counting seconds is a matter of moment (excuse this confusion of terms) that such a watch should have a very big sale. If anyone should adopt this idea, he can send me one of the new watches as an acknowledgment.

Inventors are not very eager to patent things on this side of the water. For complete protection one must pay about two hundred pounds, and the British Government allows the same idea to be patented over and over again without a word of remonstrance, at the same time pocketing the fees. If a private individual were to endeavor to obtain money in such a way, the transaction would be called by a very ugly name. I believe that the liberal manner in

which inventors are treated in America in the matter of fees, and searchings for previous specifications of an identical nature to the one for which protection is desired, has much to do with fostering that ingenuity, and fertility of resource for which the country is famous.

Workers with the optical lantern, or to call it by its older name the "Magic" lantern, have often asked the question whether or not the electric light will ever supersede the limelight for this particular purpose. We, in London, have lately had an opportunity of seeing how far the more brilliant illuminant is suitable for the projection on a screen of photographic transparencies. The "lantern evening" of the South London Photographic Society was the occasion to which I refer. This, so far as I can learn, represents the first time that the lantern has been used in this capacity. Or rather, I should say perhaps—the first occasion upon which an arc-light has been so employed, previous trials with incandescent lamps having often been made, but, of course, on a much diminished scale.

The new light was not in every way a success, although no one could find fault with the way in which it was worked by the operator. It showed up every little speck of dust—or other blemishes—which, by the way, in exhibition slides had no business to be there at all—in a way that must have taken the conceit out of the owners of certain pictures. The light was of the glaring bluish tint, and gave excessive contrasts between the lights and shades of the pictures exhibited. One more fault must be attributed to the electric light. It hopelessly shrivelled up by its heat many of the films submitted to it. Possibly two of these faults might have been remedied by the interposition of an alum trough to rob the light of its heat rays, and the use of some warm tinted medium to correct its hardness. The exhibition referred to took place in the rooms of the Society of Arts—lent for the occasion—where there is a convenient dynamo machine for such experiments. Very few places in London possess such a thing, and the experiment is not therefore likely to be soon repeated.



**COLORING BROMIDE PRINTS.**

BY W. Y. SMITH.

AFTER my prints are washed, I hang them up to dry; when dry, I color them with liquid water color, let dry, then put back in the water, and let get thoroughly wet; then put them on a rubber sheet, rub down well, and let dry. They will then peel off with a nice gloss and nicely colored. Paste the back and lay on card, and rub down with a nice sheet of paper, and they come up nicely colored with a fine finish on them. Touch up the hair with India ink and surface color; color to suit the hair; also spot or touch up the face. A lead-pencil is good for touching white specks, if not pressed too hard.

It seems that some have a doubt about good enlargements from small negatives on bromide paper being possible. There can be just as good large pictures made from small negatives, if good and sharp, as can be done in a large camera. I am making some that are as good as any made by other artists in their large cameras. My trade has increased by the use of this, and everybody here that sees the work is pleased with it. My apparatus and fixtures for working it I made myself at a cost of about \$2.50, but I cannot give a description now; I will if anyone wants to know.

What I have said may be new to some, if not to all. I will say something on developing bromide paper presently.

**CHANGE OF BASE.**

"One goeth and another cometh."

"Old decays but faster new creations."

The *Photo. Merchants Board of Trade* may be regarded as a thing of the *past*. It has merged in, or has been *Jonah-ized* by the "*Photographic Stock Dealers' Association of America*," an *Association of Dealers in Photo. Supplies*, who think their interests can be served better through an *Association* under their *exclusive control* than they have been through the *Board of Trade*, which embraces importers and manufacturers as well as dealers. They may be right in this; we see no reason why under conservative

management, this new organization may not be expected to achieve a good degree of success in the direction in which the Board of Trade has been working, and do it perhaps with less friction. It is not wise, however, to expect too much from any organization. No Association can remedy all the evils that have mushroom growths in the hot-bed of competition in all lines of business. Harmony among the members of any trade is not the child of legislation, but is the offspring of good will and the spirit of concession, these may be fostered, they never are created, by association; they must exist in the members before they can be developed in the organized body.

**THE HUMOR OF IT.**

POSSIBLE CUSTOMER: "What does a first-class photograph of a corpse cost, Mr. Regardus?"

Mr. Regardus: "Why none of your family are dead, are they?"

P. C.: "No, not yet. But our gas bills in New York have been so outrageous recently, that my wife has bought a kerosene lamp, and is teaching Bridget how to develop a breakfast with it. I think we shall fix you a job soon. Any way, it's well enough to save up for the future, don't you know."

SCENE—An amateur studio in Cork.

Dennis: "Faix and are yez the man who futtegrafed the moon?"

Amateur Astron-photo.: "I am, sir."

Dennis: "Humph! And how far is the moon from yez?"

A. A. P.: "About 3,000,000 miles."

D.: "Och, well thin I want yez to futtegraf me brother, who is in Chicago, just a thrife of 3000 miles beyant."

AN "impressionist" sent in a "sunset" picture to the Royal Academy. He carefully marked on the back of the frame which was the right side up; but he added, in a polite note, "Should my work be placed on your wall upside down, please catalogue it as sunrise."

PHOTOGRAPHER (to awkward youth): "Your position is not a good one."

Youth: "I know it, but the boss is going to raise my salary to seven dollars a week on the 1st."

STAGE-STRUCK LADY (anxiously): Isn't that expression a little sad?

Lithographic artist: You vos going to daig dot Migado ond der road, ain't it?

Stage-struck lady: Yes.

Lithographic artist: Vell, dot pordraidt vill be just like you in apoud dree veeks.—  
*Tid Bits.*

## THE TRANSFERRING OF COLLODION - CHLORIDE PICTURES UPON GLASS, PORCELAIN, AND IVORY.

FORMERLY the transferring of collodion pictures from gelatine paper to glass was attended with troublesome manipulations. It has seemed to me that it might be possible to transfer the pictures cold; and my first experiment has turned out satisfactorily. Instead of gelatinized paper, I used gummed paper, and since gum Arabic is soluble in cold water, the treatment is much simplified.

Since three-ply gum paper has been in the market for some time, I use it in this way: flow chloride of silver collodion slowly over it to obtain a thick layer. This collodionized paper expose in the copying-frame under the negative until the lights show a blue tone, and the shadows a deep black.

The transferring can be done directly or indirectly, so that the picture may be produced reversed or right.

For projections and window pictures, the former method is suitable, and this, being the simplest, I will speak of it first.

Spread a ten per cent. gelatine solution upon a glass plate, and let it dry. Dip the strongly copied picture in cold water, also the glass plate, and lay the picture upon it; take both out and go over them well with the squeegee. It is possible after a very short time to draw away the paper from the picture, which sticks to the gelatinized plate. Then pour upon the picture hypo solution, wash off well, and let dry.

Should the picture appear light in any place, this can be drawn over as in gelatine

pictures. A transparent paper is needed, and this can be produced by saturating smooth sized paper with etherized copal varnish. This paper must be dipped in water with the copied picture, then both taken out and the picture laid upon a somewhat larger glass plate. Then rub the squeegee over it and draw away the gum paper, fix and wash it. Lay the picture upon the gelatinized surfaces, rub again and draw away the transparent paper.

In order to multiply a negative, one must prepare next, as in the first method, a diapositive, and from this, according to the second method, a negative, which turns out as sharp and strong as the original negative.—*Photogr. Archiv.*

## SOME POINTS ON MOUNTING.

BY J. S. MASSECK,  
Grand Rapids, Mich.

SEEING an inquiry by "Liebich" in your last issue, and having received several letters in regard to the same thing, I will briefly give the results of my experience.

First, to make starch paste, take corn starch, about 3 or 4 heaping teaspoonfuls, add cold water sufficient to make a batter, have a quart of water boiling, remove the boiling water a few moments, and then pour the hot water on to the cold batter, at the same time keep stirring briskly, add as much of the water as will give you the right thickness of paste, bearing in mind that it will be a little thicker when cold. When thick enough, remove your stirring stick and allow the paste to cool.

When wanted, remove very carefully, the film which has formed over the top, and you will find a *perfect paste*, without any straining, ready for the brush.

This will do for 30 sheets of paper.

Make new paste each day.

In mounting photos. back to back, after carefully numbering them before wetting, I place them from the dish upon the glass or board, as they will come in the book, having *one* pile only, paste the top one, lift carefully and turn it back down on the one under it. Remove to blotter, rub down from centre, turn over to the pile of those already done and rub out any air bubbles that may ap-

pear. The photo. now remains in this pile of alternate blotters and photos. till the 120 are all pasted and piled up. Then remove to stretcher, cover with muslin, and when nearly dry, remove, cut out, polish, and burnish. After removing from stretcher always keep the pile of prints between glass or marble, to prevent drying too much till they are put through the burnisher. After prints are burnished a fly will slip on them. A pasteboard a trifle larger than your print must be used as a support to it when burnishing. My work is full 10 x 12 on 18 kilo paper, 30 sheets, or 120 prints in a batch.

**DEVELOPMENT OF DRY-PLATE LANTERN SLIDES.**

BY F. C. BEACH.

PLATES having a sensitometer register of twelve or thirteen are mostly used for making lantern slides, and it is generally advised that they be developed with the ferrous oxalate, or, more commonly called, iron developer, if clear, high lights and a warm brown color is desired.

The use of the pyro developer is now so general for negatives that it affords a great convenience to the amateur in case it can also be employed for the development of transparencies. It is only within a recent period that it has been recommended for this purpose—one method being the use of pyro in connection with sulphite and carbonate of soda.

From some experiments we have lately made we have ascertained that it is possible to obtain lantern transparencies of superior merit very easily and quickly by using Beach's sulphurous acid pyro and potash solutions. We repeat the formula as heretofore published :

*No. 1.—Pyro Solution.*

- Sulphite Soda, chem. pure . . . 4 ounces.
- Warm Distilled Water . . . 4 “
- When cooled to 70° F., add :
- Sulphurous Acid . . . . . 3½ “
- And, finally :
- Pyrogallol . . . . . 1 ounce.

*No. 2.—Potash Solution.*

- A.—Carbonate of Potash, chem.
  - pure . . . . . 3 ounces.
  - Water . . . . . 4 “
- B.—Sulphite Soda, chem. pure . . . 2 “
- Water . . . . . 4 “

437 grains to each ounce of salt.

Combine A and B in one solution.

To develop four 3¼ x 4 inch lantern slide plates at one time, place them in a 6½ x 8½ inch developing tray, then prepare the developer as follows: 3 ounces of water and 40 minims of No. 1, and 30 minims of No. 2; flow it over the plates. In the course of three or four minutes development will commence, and the image will appear very slowly. Continue the development until the shadows look quite black, otherwise the plate will fix out too thin. In case the development hangs back, a few drops of the potash solution should be added. If the exposure should be correct, a clear, crisp, blackish-brown transparency will result.

The method we employed was to place the printing-frame, holding the sensitive plate in contact with the negative, at a distance of two feet from the flame of a one-inch wick of a kerosene lamp, making an exposure of from twenty-five to forty seconds, according to the density of the negative. No staining of the plate appeared—which indicated that as long as sufficient sulphite of soda is employed the pyro stain is prevented; no after-cleaning solution of citric acid or alum was used. Several plates may be developed successively in the same solution. After a slight washing, the developed plate is fixed in a saturated solution of fresh hypo, then washed in changing water for one hour, and dried. After mounting, it is then ready to be shown in the lantern. The process, as a whole, is a very simple one, and affords a pleasant and profitable amusement for long winter evenings.

Per Doz:

- Carbutt's 3¼ x 4 inch Lantern Slide Plates . \$0.65
- Eastman's 3¼ x 4 inch Lantern Slide Plates . .65
- 3¼ x 4 inch Cover Glass . . . . . .40
- Lantern Mats, R. C. and circle opening . .12
- Binders, per package of 50 . . . . . .10

### THE OPEN CORNER.

SECRET PROCESSES AND PROCESS MONGERS.—Some time ago we warned our readers against buying processes and recipes of parties unknown to them. Here is the confession of one who did not obey:

DEAR SIR: Enclosed please find five dollars. I am late in subscribing, but I would not like to miss your welcome journal.

While writing, I should like to ask some information. Some two months ago a gentleman, who traveled under the name of Lewis, from Australia, but whose real or pretended name was Lewis Furlong, visited this city. He showed me a new developer for dry plates, which he demonstrated, and which I have used ever since in preference to many others. He also furnished a new light for the dark-room, instead of the ruby glass. The light is furnished through thin shingles of yellow pine. I have worked by that light since then, and like it very well; it does not hurt the eyes so much as the red rays from ruby glass, and, while it gives a strong light, it does not fog the plates.

Mr. Lewis's, or Lewis Furlong's developer is as follows:

Sulphite of Soda (E. Merk's) . . . . .	1 drachm.
Carbonate of Soda " . . . . .	¾ "
Chloride of Calcium " . . . . .	120 grains.
Water, pure . . . . .	64 ounces.

Add these together in a clean evaporating dish, heat until dissolved, let settle, filter, and it is ready for use.

Pyro . . . . .	1 ounce.
Water . . . . .	6 ounces.
Oxalic Acid . . . . .	3 grains.

For use, take 1 ounce of soda solution, 2 drachms of pyro solution, and 5 ounces of water.

Mr. Lewis also gave me a formula for lubricating prints, as follows:

Alcohol . . . . .	8 ounces.
Gun Cotton . . . . .	40 grains.
Ether . . . . .	4 ounces.
French Glycerine . . . . .	1 ounce.
Mica, Soluble . . . . .	1 "
Alcohol . . . . .	4 ounces.

For small prints, use less heat and less pressure in burnishing.

I have made up some lubricator according to directions, but with no good results; the mica and cotton would invariably settle to the bottom. Can you kindly tell me the cause of this, or, if you consider the lubricator, as above given, of any value?

Respectfully yours,  
PENNA. PHOTOG.

PRETTY hard to give up the PHILADELPHIA PHOTOGRAPHER and push aside the camera. A gentleman who has taken our magazine since No. 1, writes us as follows:

"When my time expires for the PHILADELPHIA PHOTOGRAPHER please stop it, or rather stop sending it to me, as I am out of the business, after thirty years of ups and downs. Peace to her ashes, and long may she wave. All hail, and good bye.

INDIANA VETERAN.

### A CURIOUS CASE.

RECENTLY we received from one of our correspondents, two "blue" prints from negatives, which we could scarcely understand without more knowledge as to their preparation.

Each print had a dark border of about three-quarter inches completely around it, while all the rest was completely veiled. The following letter accompanied the prints:

Enclosed find two blue prints taken under the following circumstances:

Some time ago I bought a dozen 5 x 8 diamond plates, and having made six exposures, found all fogged entirely except a margin of about half an inch all around the plate. I thought I would experiment with the remaining six, so treated them all to a bath of potassium bichromate (2 grammes to 100 c. c. water) washed and dried. On Dec. 22d, I exposed one on my parlor for 1½ hours. On Dec. 30th, I exposed two more for 2 hours. All these exposures were made with Morrison B. Group lens, focus 45 stop, and developed with Mr. H. J. Newton's formula as follows:

Sodium Carbonate . . . . .	3 ounces.
Potassium Carbonate . . . . .	3 "
Sodium Sulphite . . . . .	3 "
Water . . . . .	32 "

Take  $\frac{1}{4}$  ounce of this,  $\frac{3}{4}$  ounce water, and 4 grains dry pyro. Found the plates considerably overexposed, but diluted developer, and the prints show the result obtained. The dark border is caused by the unfogged portion, which comes up very thin. Cannot say what caused the dirt spots on the plates, but it may have been drying after treating with bichromate.

The remaining three plates I kept until Jan. 14th, and, on developing, found them fogged exactly as before treatment, so the bath seemed only temporary in its effect. The first and second plates are duplicates, so have not sent print of first. Hoping this may prove of interest, I remain,

EDW. K. LANDIS.

We answered that the trouble was probably caused by the emulsion having been used for coating directly after washing, and the plates coated thickly; the outside edges drying in a short time gave one degree of sensitiveness, while the centres drying more slowly were much more sensitive; or the gelatine was partially decomposed by slow drying thus causing fog. If the gelatine in the centre of the plate shows reticulation that would be evidence of decomposition; or, third guess, the gelatine emulsion had been flowed too soon and had dried unequally.

Without being able to solve the problem, Mr. Landis forwards us one of his plates, and writes further, as follows:

"I send you with this one of the plates to show the peculiar way in which it is fogged. This plate was tried with bichromate and left about three weeks before exposure and development, so that it returned to its original condition. I had a  $3\frac{1}{4} \times 4\frac{1}{4}$  plate (of same brand but perfectly good) which I exposed on my baby. In handling it was afterwards exposed to bright white light for two or three minutes, and afterwards treated with bichromate and exposed on my parlor. Soon after the exposure began, 4.30 P. M., Dec. 23d, the sun went under a cloud and it grew very dark. On developing I found the plate very much underexposed, as I had expected, but the window curtains (lace) were very distinct, and in trying to force it up I fogged the plate. No fog showed until

I added too much soda to the developer, and there was no trace of the previous picture. The plate I send you was exposed on my house, and on developing I stopped as soon as I saw the fog spreading all over the plate. Did not fix the plate, as I wanted to show it exactly as it was. It had one second exposure with Morrison B. lens, focus 45 stop. Time, 8.45 A. M."

We submit the conundrum to our readers and will be glad to have any solution they may offer *pro bono publico*, though we trust such affliction may remain an uncommon one.

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### LIGHT FOR THE DEVELOPING-ROOM.

At a late meeting of the New York Society, in response to the Question Box, Dr. J. H. Janeway made the following interesting remarks:

"It is a notorious fact that almost every operator's eyes are affected by the ruby light. Some amateurs I know have been compelled to give up photography, which they dearly loved, on account of the effect of the ruby light upon their eyes. It seems particularly to affect certain parts of the retina of the eye, and very frequently brings about a condition of, I might say, condensation of the retina or of the cone parts of the retina. I shall not undertake to enter into the anatomical structure of the retina at present. To my eyes it is a beastly light, and I have tried to get rid of it as best I could. When we look around for another, and see how the great Architect of the universe has distributed his different tints and colors, and we find that green is the most pleasing color, I have often wondered why green—or a combination of green—would not be a safe color for the dark-room. Any person who has been a long time upon the plains knows there is no pleasure at all to the eye. The eye becomes intolerably tired, and it hails with delight the sight of a small sprig of cottonwood, or something of that kind, which has a bright green color, and it is perfectly refreshing. Persons on the seashore have a similar experience seeing a white clear sand constantly; their eyes become tired, and if they should strike across a

cedar they hail it with delight, and their eyes become rested. Some two years ago a member of the Society, a distinguished amateur, Mr. Newton, recommended that the ruby or orange glass should be covered with a green color. He suggested the aniline dye called the "new green," as of great advantage in producing a pleasant light, and at the same time a perfectly safe one. I have coated my developing lantern glass with it. I have yet to have a plate fogged with this combination of tints. We have also the authority of some other writers on the subject. I find in *Scovill's Annual* two parties who speak of this ruby light. One is Charles Kinderman. He says: 'The use of the ruby light for dark-room illumination I have totally renounced, and have adopted in its place a combination of three glasses of chrome-green, orange-yellow, and opal white. The light is very agreeable, and not at all injurious to the eye. It is perfectly safe, and causes no fog even by prolonged development.' Mr. David Cooper, in the same book, says: 'The ruby light is detestable and decidedly unsafe. That the most pleasant, and at the same time as safe a light as is necessary for the most sensitive emulsions, is the orange post-office paper of double thickness. A combination of orange pot glass and green of the cathedral variety, used in moderate quantity, is also safe and pleasant.' Several other writers in other books have mentioned this same thing. If there is any trouble with the ruby and orange lights, and one has not the opportunity of combining the green with it, I would suggest that he takes a pair of green-glass spectacles, and when the eyes begin to feel tired, put them on, and he will find what a great relief it is to the eye. For myself I think that the combination of the green over the ruby, as suggested by Mr. Newton, is decidedly safe and pleasant."

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### FACTS AND FANCIES.

THE electric incandescent light, which has been applied to the taking of photographs in such inaccessible places as underground cavities, mines, and so on, is now to be tried by M.M. Bonfante and Massonneuve for photographing the sea bottom, sunken vessels,

and submarine works. Divers may be employed in the work, because photography nowadays can be learned in a few lessons. Again, by suitable electrical arrangements, the negatives may be taken from above water, the light let on, and the camera manipulated from a distance. While upon this subject we may mention that M. Marey, the well-known experimenter in instantaneous photography and the analysis of movements, has succeeded in producing photographs with an exposure of two-thousandths of a second, and he proposes to reduce this period still further. M. Chevreul, the illustrious French centenarian, has enabled him to do so by devising an "absolute black" background, against which the illuminated object is seen. If the background emit light, it is found that the rapidly revolving shutter or obscurator employed is rendered less effective, and so it is of great importance to have a perfectly black background. The background of M. Chevreul is obtained by using a box or case blackened inside, and piercing a hole in the wall. M. Marey employs black velvet to form the background, and care was to avoid dust, which sometimes emits a little light.

THE green ray is a flash of emerald colored light, said to be observed sometimes for a second or half a second at the moment the sun's disc disappears below the horizon, and just when one sees only a very small segment of its surface. Tourists in Egypt and the Red Sea testify to the phenomenon. Some consider it objective, and others believe it to be subjective. According to a letter of M. De Maubeuge to M. Mascart, the well-known French physicist, the phenomenon has been several times observed in the Red Sea at the rising of the sun. M. De Maubeuge particularly noticed it, he states, in October, and the first impression of his eye and that of his assistant, was a beautiful emerald green. He has also seen it at sunrise behind mountains elevated from one degree to two degrees above the horizon. These observations tend to prove that it is an objective phenomenon. He has also observed it at the setting of the sun. There was not the least cloud between the orb and spectator, and the air was pure, but humid. The same phe-

nomenon has not been observed by him from the moon, Venus, or any star, although he has often looked for it in the tropics.

ONE of our enthusiastic correspondents en route to California, halting often, writes: "I am having some grand chances. It is a successful hunting excursion with me, all the time, and no blood shed, or dying eyes to look up into yours as the light and life go out of them, to make your heart sick for a whole day, as it used to do in the old White Hills and Adirondacks. Remember?" He is a poet, and a photographer with a heart.

"WHY do photographers always say, 'Now, look pleasant,' just as the camera is about to do its work," inquired a lady who had recently been having her "pictures taken." "It has anything but the effect desired. When one has been fixing oneself in position, and everything is arranged, the camera pointed at you, the remark sounds very ludicrous, and generally causes one to smile, and, in attempting to control the smile, spoil the whole expression of the face. Sometimes those who are not skilled in controlling their facial expressions, in trying to 'look pleasant,' assume an expression of anger, or look as though they were in great pain. I think it would be much better to say 'look natural,' as that is what is desired, and I think it would have a much better effect."

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### OUR PICTURE.

SOME time ago one of our esteemed correspondents, old enough to know, complained that enough is not done "between sessions," to maintain the continuous usefulness of the P. A. of A. The conductor of this magazine can hardly have such an accusation laid at his door, since we have done more than a little to keep up the desire that all good conventions should arouse; for increased interest in our art and in the work of those who follow it. We believe this is the right way to do; therefore we make no apology for bringing to our patrons some more studies from the splendid collection which came to our late St. Louis exhibition from Germany. All who were there will remember the splendid collection of Messrs.

Shulz & Suck of Karlsruhe. From that series we have selected nine German gems for our present *Mosaics*—and gems they all are. Those of our careful readers who have already examined them will notice that in some cases we have selected two or three pictures of the same person. This, to show how skilful our German friends are in posing and how deftly though differently the same subject is lighted.

Some of the others were chosen for the advantages given, as studies, by full length figures and as lessons in the arrangement of the hands, a point so often carelessly neglected. And with the rest is one of a Tyrolean peasant girl, whose sweet simplicity after all is not in harsh contrast with the others, because in no case is there any effort made at extravagant or theatrical effects in attitude or lighting. For a critique on the arrangement of the hair of the fair subjects we must refer our readers to our Scotch letter. They are German gems, and in no case did the jurors display better judgment than in awarding a medal to Messrs. Shulz & Suck. We may state that these gentlemen have one of the most complete and artistically arranged studios in Continental Europe. They have sent us a number of 14 x 17 interior views of their various apartments which are not only of splendid quality but which give evidence of cultured taste, comfort, and elegance quite palatial in every way.

Some two years ago our contemporary the *Wochenblatt* gave a long, detailed description of this studio, with a supplement showing its plan and arrangement. From these and the photographs sent us we have made another paper, which will prove instructive to all who read it, we believe. Anyway, it will take them, in thought at least from the ordinary rut. We have a further surprise in preparation from this same studio which shall be revealed in due time. And then we shall have occasion to hold up the public spirit, enterprise, generosity, and fraternal feeling displayed by Messrs. Shulz & Suck—such as will do much to bind together the fraternity in our two countries and help the P. A. of A. and other societies to be continuously useful.

Our *Mosaics* was made from boudoir prints

by Messrs. Roberts & Fellows, Philadelphia, on the well-known "Eagle" plates, the loan of the prints being due to the courtesy of Mr. G. Gennert, New York. The prints were also made by Messrs. Roberts & Fellows on N. P. A. albumen paper supplied us by the importers, Messrs. E. & H. T. Anthony & Co., New York. In an early issue the child study from the South will embellish for us.

### THE SUCK STUDIO AT KARLSRUHE.

As announced in the paper on *Our Picture* we add below some points concerning the famous studio of Mr. Oscar Suck (late Shulz & Suck) at Karlsruhe, taken from a

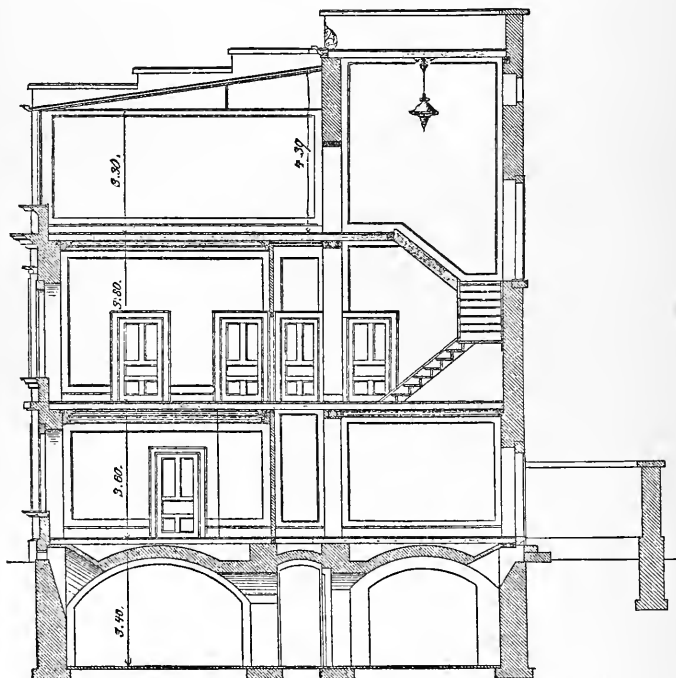
impressions of the exterior, Dr. Stolze conducts us up the winding stairways, through the splendid apartments and work-rooms, and then enters into a fine detailed description of what interests us most, the capacious glass-house.

Dr. Stolze says:

The entrance to the studio, brightened by the window with the glass paintings, presents a very rich appearance, the vestibule adjoining the stairs being 10 metres in extent.

Ascending the easy steps of this staircase, situated almost exactly in the middle of the building, the visitor enters a glass-house of great size through a large folding door. It is 42 feet 6 inches long, 22 feet 5 inches wide, 10 feet 4 inches high at the lowest

FIG. 1.



letter written to the *Wochenblatt* by our esteemed contemporary Dr. Stolze.

As will be seen by the accompanying engravings, an immense building is devoted to photography here, and the skylight is constructed upon the roof thereof.

After describing his journey and his first

end (front), and 13 feet 7 inches high at the rear.

It is similar to that of Loescher and Petsch's Berlin studio. The curtain frames are covered with opaque material slipped between the perpendicular and oblique bands of the iron construction, and may be held in any

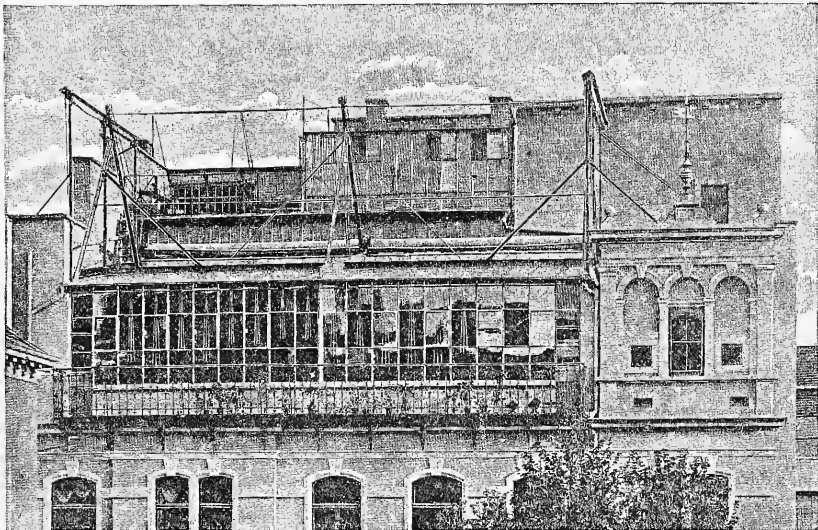


place whatever. The perpendicular frames are thereby bi-partite, so that one half is pushed over the other, and the upper half, when it is drawn up to its full length, is followed by the other. Both halves may disappear in the front wall of the house which is closed up light-tight for about 2 feet high over the porch.

The upper frames are undivided, and slide backward in a kind of movable stage (as used in theatres). They are easily moved, and permit an absolute exclusion of light, such as never can be obtained by curtains. It is hardly credible what a wonderful light can be had in this way. In an ordinary photographic studio unwelcome rays of light

see. It is still an open question, whether the kind of light used by most photographers, can be considered as most suitable for their special purpose. It (this light) is copied more or less from that of painters' studios, yet without corresponding entirely to it, for the requirements of the photographic studio are essentially so distinct, the necessary dimensions so different, that deviations must, of course, result. Now it is not at all necessary for the painter to have his model so lighted that he can catch all the degrees of shading from the half tones down to the deepest shadows without any modification; it is much more important for him to draw all the *forms* sharply and

FIG. 2.



penetrate everywhere, partly through the curtains themselves, and partly through the places where they fall over one another. These rays irritate the eye of the model, and at the same time influence—and that not to its advantage—the general exposure, by causing false light to penetrate the chief light. In the Suck studio, a soft and mild illumination prevails. And this may be increased, so that the light in proportion to the height may appear very like that of a sitting-room, much more so, in fact, than other studios which one is accustomed to

distinctly, while he reserves the right to himself to arrange and modify the lights and shades according to his own ideas. This the photographer cannot do; he needs, therefore, much more intricate arrangements for lighting, suitable for any alteration he may choose to make, for he must produce every modification at once, since he must copy his model as it is, and not as he would like to have it. Then there is another circumstance to be considered: the photographer is not only restrained much more by truth to nature, but a much greater

following of nature is demanded of him. Those pictures are best, which show us our loved ones, as we are accustomed to see them, and we do not want them fixed up in some strange sort of way just for the photograph. We generally see the people with whom we are most familiar in rooms with moderately high side and front lights. Therefore it often happens that photographic portraits taken in a room have a peculiar charm, and seem to us to attain a degree of likeness to the person, unequalled by any studio-portraits. It is, therefore, worthy of consideration, whether in most cases it would not be better to work with less top light than is now used, by which means, the deep shades under the eyes and the sharp lines will be so softened, that the artistic brightening up, so often needful, will be quite uncalled for. I will now return from this digression to the description of the glass-house.

Here we break the interesting letter of our colleague, since what follows in his letter pertains principally to details of working to which we may again have occasion to refer.

### FORMULÆ FOR DEVELOPERS: HOW SHOULD THEY READ?\*

BY DR. JOHN H. JANEWAY.

I THINK that the questions we have for discussion to-night are both apt and timely, especially so when we see how flooded the literature of our art science is with the constantly increasing armies of developers.

The tyro is early told by the many writers "to choose out a good developer and stick to it." Sound and good advice, surely. But how is he to pick it out?

It is like taking a young man into a machine shop, and saying to him "here are all the materials required, and all the tools necessary to work with, now go to work and build a locomotive." Does he know the difference between a wrench and a jack-screw? So it is with the beginner; scores of formulæ for developers are before him, but what does he know of the properties of the different ingredients? The pyro, what

is it for, and how does it act upon the emulsion or the plate to bring out the latent image? The carbonate of soda and potash? He sees that some use one, some the other, and some both. Is he told their action and the requisite amount necessary to produce that action, and what is the sulphite of soda added for to the above, sometimes in "A," and sometimes in "B?" He is told that citric acid and its salts, and the bromides are restrainers. Restrainers of what? He sees that the bromides are recommended for overexposed and underexposed plates; but why? And so on. Even the fixing bath is a perplexity to the beginner.

But even when he has mastered, to a considerable extent, the properties of the different articles comprising the developing bath, his troubles are not at an end. The great array of unscientific, incongruous, bulky, wasteful, and happy-go-lucky developers (and a careful survey of the different published formulæ, will soon show that each of the above classes have one or more in its ranks) stare him in the face. From which is he to choose? If he is determined to know himself, and not take the word of another, he begins by mixing up one developer after another according to the formula given in each case, and tries them in turn, in search of a good developer, and the one that will give him the best reward for his work, but he soon finds the shelves of his dark-room full of bottles, and his pocket-book empty. Or, suppose that a fair young lady amateur, not having the knowledge, time, or facilities to prosecute the above experiments, chooses, by the advice of a friend, a certain developer, which must be made up strictly in accordance with the formula. Intending to take a trip for a short stay in the country, where she hopes to make some shots at choice bits of woodland and lawn, she has the developer made up for her at the nearest drug store, never dreaming of the result in bulk. Now "A" calls for 60 ounces, "B" 46 ounces, and an equal quantity of hypo solution is required. To start she must sling her camera in its case over one shoulder, tuck the tripod under her arm, seize two one-gallon demijohns in one hand, a demijohn of the same size and one or two hand-bags in the other. Her dismay

\* Read before the Society of Amateur Photographers of New York, February 8, 1887.

at this bulk, can easily be seen. "The impediment" of this outfit would soon tire out the most enthusiastic of amateurs..

How much better it would be, especially to the amateur, if all the formulæ were given so many grains to the ounce of water. It would take but a glance to convince him, whether it was a scientific one or not, whether the proportions of its ingredients were correct and capable of producing the best and desired results. What a saving of time and money it would result in; saving in solution of many of the salts used, and especially sulphite of soda, which rapidly deteriorates and becomes useless, or nearly so. Why then make them in that way? Why not let the formula read:

Carbonate of Soda . . .	So many grains.
Sulphite of Soda . . .	" "
Pyro . . .	" "
Water . . .	1 ounce.

Carbonate of Potash, or Soda . . .	So many grains.
Water . . .	1 ounce.

And then multiply each ingredient by ten or its multiple, and you will have a developer of sufficient quantity, and sufficiently fresh, to meet all demands; and then, if the plate-makers would paste on the cover of their boxes their formula for the developer reduced to grains to the ounce, it would be of great advantage and economy to any one trying one or two plates. The developer could be made up before opening the boxes.

A careful analysis of eighteen published formulæ show a great diversity in the amounts of the ingredients, and

The largest amount of Pyro used to the ounce of Water . . .	10	grains.
The largest amount of Sulphite of Soda to the ounce of Water . . .	80	"
The largest amount of Carbonate of Soda to the ounce of Water . . .	40	"
The largest amount of Carbonate of Potash to the ounce of Water . . .	$21\frac{2}{10}$	"
The smallest amount of Pyro used to the ounce of Water . . .	$1\frac{3}{8}$	"
The smallest amount of Sulphite of Soda to the ounce of Water . . .	5	"
The smallest amount of Carbonate of Soda to the ounce of Water . . .	$1\frac{1}{5}$	"
The smallest amount of Carbonate of Potash to the ounce of Water . . .	5	"

In many of the formulæ the amount of sulphite of soda was largely in excess to the quantity generally conceded to be required in proportion to the pyro, 4 of sulphite of soda to 1 of pyro. But in one we have sulphite of soda, 50 grains; pyro, 6 grains. Another formula says his alkali is weak, 40 grains to the ounce of water!

The use of saturated solutions in making up the developer should, I think, be discarded, for the reason that they are uncertain, the changes of temperature and evaporation rapidly affecting them; and then the mixing of two or more saturated solutions oftentimes produces the deposition of more or less of one or both of the salts, but never in equal proportions.

I think also that the use of either the dry or granulated salts is also objectionable, especially the carbonates—carbonic acid is not the most stable element. In the crystals you have a fixed and determined quantity, and they should, therefore, always be called for.

I have not referred to the part of the question whether the ounce should always be regarded as composed of 480 grains, for if the method of writing the formula in so many grains to the ounce of water be adopted, there is no further trouble to be apprehended as to whether the ounce is 437 or 480 grains. But should the term be used? I think that the quantity in grains should be given (in  $437\frac{1}{2}$  grains or 480 grains). This is rendered necessary from the fact that most of the articles used are sold by avoirdupois weight,  $437\frac{1}{2}$  grains. Another good plan would be, in directions for making up the formula if the grain system is not adopted, would be to say: Water, to make so many ounces. One should recollect in reading the English formulæ that there is a difference of 4 ounces more in the pint used by them.

### MELHUIH'S ROLLER SLIDE.

DEAR SIR: For the benefit of those with some mechanical genius, who would like to be able to make their own roller slides, and avoid buying very expensive ones or infringing any patent, as also for such who would like to make such an article for the

profession, I copy from the July number, 1853, of *The Photographic and Fine Art Journal* (long since ceased publication), an illustrated description of Melhuish's roller slide.

*To the Editor of the Photographic Journal.*

Sir: The object of the slide is to enable a person to carry out any number of sheets of sensitive paper and change them conveniently in the open light. The slide is fitted up with two rollers, *a a*, and the sensitive sheets, *b b*, are gummed together, making one long band, the ends of which

drawn back from the glass in order to release the exposed sheet, and allow it to be rolled on the exposed roller; the board is kept back while this is being done by turning the square rod *e' e'* half round, so that the angles of the square will not pass back through the square opening until again turned opposite to it; *e e* are doors, by opening which the operator can see (through the yellow glass) to adjust the position of the sensitive sheets when changing them.

*Observations.*—The sheets need not be gummed together with *any particular care*, the pressure board insures their being kept flat whilst being exposed; all that is necessary is that the person joining them should have clean hands, and lay the sheets to be connected on clean paper. It takes about an hour to fix thirty-six sheets on the rollers. It takes *less than a minute* to change each sheet.

My test specimens at the exhibition are taken with the roller slide. It has been used by James Glaisher, Esq., F.R.S., John South, Esq., of St. Thomas's Hospital, and Frank Haes, Esq., who have expressed themselves satisfied with its performance.

I remain, Sir,

Yours very respectfully,

A. J. MELHUISE.

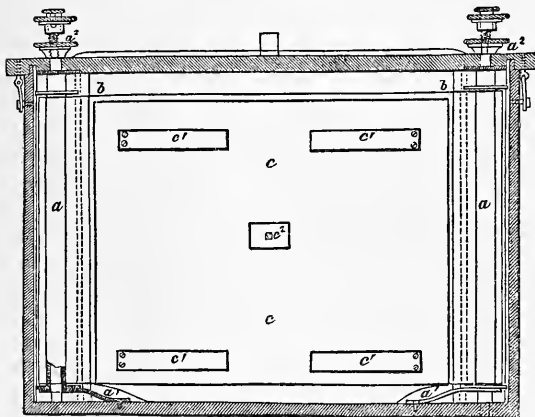
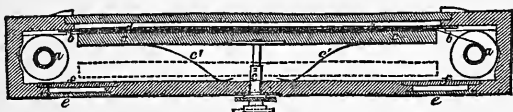
I will suggest an improvement, that, instead of a glass in front of the board "*c*" to

press the tissue against to keep it flat, a *rabbetted slit* be substituted, into which the board "*c*" be pressed by springs "*c c*," the rabbet to be deep enough and to fit the board, so it will first straighten out the slack of the paper and keep it taut and straight.

Only one thing more is wanted to make this perfect, viz., an arrangement on the rollers to register the length of the paper rolled out, which I think could readily be devised without infringing any patent. However, this description is sufficient to enable any good mechanic to construct a practical roller slide, and thus have compe-

are gummed to pieces of paper always kept on the rollers. The sensitive sheets are wound off the left or reserve roller on to the right or exposed roller, until all are exposed.

The rollers are supported on springs, *a' a'*, to render their motion equal; they are turned by the milled heads, *m m*, and clamped when each fresh sheet is brought into position by the nuts *a<sup>2</sup> a<sup>2</sup>*; *c* is a board which is pressed forward by springs *c' c'*, so as to hold the sheet to be exposed, and keep it smooth against the plate of glass *d*; when the sheet has been exposed, the board is



tion in this as well as in other branches of apparatus manufacture.

Respectfully yours,  
D. BACHRACH, JR.

**PRACTICAL POINTS FROM THE STUDIOS.**

**SILVER INTENSIFIER FOR GELATINE NEGATIVES**—In former years, in the time of the supremacy of collodion, it was the rule to bring out the details of the negative by iron-developing, and to give these details sufficient density for print by means of pyro and silver. Also, in gelatine negatives, these older methods were used to give density and fine quality. But silver strengthening produces a result, which can be safely relied on, and this cannot be said of any of the various mercury methods, unless the greatest care be used in every part of the process. The only fault possible in the silver reinforcing process, is in using the strengthener before the hypo has been thoroughly washed off. The negative should be washed well after the fixing and laid in an alum bath. Rinse thoroughly under running water and lay it in a mixture of

Citric Acid . . . .	2 grains.
Pyro . . . . .	3 "
Water . . . . .	480 c. cm.

Let it wash a minute, then pour the fluid into a measure, in which are 30 drops of a nitrate of silver solution in the proportion of 1.24. Pour the mixture upon the negative, by which means the desired intensity will be obtained.—*Photogr. Archiv.*

A BUFFALO photographer says that he reads the newspapers carefully for accounts of fires, explosions, wrecks, and the like, and whenever any such disaster occurs he goes out with the landscape camera and makes a negative of the scene of the catastrophe. Some time later he prints a proof and mails it to the persons financially interested. An order for one or more photographs at a good price invariably follows.

"THE most pleasing effect in portrait lighting is produced by that soft but delicate ray which, falling from a decided point a trifle higher than the head, bathes the face in a

flood of mellow light, retaining the shadows, blending the half tones, and leaving here and there a high light.

"This will give the head prominence and make all the other parts subordinate to it.

"This, by a poor, modest, but faithful friend of the PHILADELPHIA PHOTOGRAPHER."

**SALTPETRE EXUDATION.**—It is estimated that the simplest and least expensive method of removing saltpetre exudation from brickwork, when the efflorescence is in position where the sun and wind do not have free access, is to wash it off with the diluted hydrochloric or common muriatic acid of commerce. About half a pound of the acid is used with an ordinary pailful of water, the application being made with a sponge.

**FIREPROOF PAINT.**—Messrs. Wilde & Schambeck make a varnish of 20 parts of powdered glass, 20 parts of porcelain, 20 parts powdered stone of any kind, 10 parts calcined lime, 30 parts soluble soda glass. The powders are made as fine as possible and sifted, and then thoroughly incorporated with the soluble glass, thus producing a syrupy mass which can be employed as a varnish or mixed with colors for painting. The proportions of the solid ingredients may be varied at pleasure, but it is generally best to keep the indicated portion of lime. Silicate of potash may be substituted for the silicate of soda if desired. The first coating soon hardens, and a second coat may be applied from six to twelve hours afterward. Two coats are sufficient. The varnish may be employed as a preservative against rust.

**ITEM.**—In dissolving pyro do not attempt to *stuff* it into your stock bottle, but just pour a very little water into your box or bottle of pyro, and you will be happy ever after.

**SULPHATE vs. SULPHITE.**—Referring in your last number to the change to "phate" from "phite," I would report that, for a long time, I found it impossible to prevent oxidation; used the best of corks, kept in dark room, etc., until I at last placed the sulphite bottle *within* a wooden box, and then my troubles ceased; for, previous to finding this

out, the air would go through any stopper I placed in the bottle.

Keep your sulphite bottle in a box or drawer, and, with ordinary care, you will find you have sulphite when you have use for it.

J. S. MASSECK.

## QUESTIONS TO THE CRAFT.

### QUESTIONS.

1. Are you making large portraits direct in the camera, *i. e.*, using a larger lens than 14 x 17, with large dry plates? If so, what is your method of lighting and manipulation, and your experience as to the quality of your results compared with enlargements from small negatives?

2. Do you obtain as satisfactory results, in portraiture, with very rapid plates, as you do with slower ones?

3. What is your most successful method of development of rapidly exposed plates?

4. Have you found an increase of business and profit with the increased facilities for making large work more expeditiously, adopted by you?

5. What has been your experience, both in practical results and in the acceptance by the public, of bromide enlargements?

6. What with platinotype prints?

7. Do they increase the revenue from your stock of negatives?

8. Please detail some of your experiences in making pictures of children.

9. In printing dry-plate negatives wherein does your treatment of them vary from your practice with wet plates?

10. What variations do you make in your manipulations in cold weather from your practice in the mild season?

11. What are the prospects for the coming year?

### ANSWERS.

In reply to your "Questions to the Craft" I would say in answer to No. 1, no, I am in the country, a section where there is no call for such work and I cannot force it.

2. Yes, I get as good if not better results with the old reliable Cramer lightning plates as with slower ones.

3. My most successful mode of development is with the yellow prussiate of potash developer either by the standard one of the

New York committee who were appointed to test the various brands of plates in the market, or the following one:

Water . . . . .	60 oz.
Sulphite of Soda . . . . .	4 "
Yellow Prussiate of Potash . . . . .	2 "
Carbonate of Soda . . . . .	1 "

4. No, I have not.

5. None.

6. None.

7. No.

8. My experience is, I suppose, like most other operators I generally get the confidence of the child or children if a group, don't hurry too much, always have my plate in readiness and when the subjects are in positions to suit me and other things are equal I expose my plate scarcely ever more than one second, sometimes less and my failures are few in comparison.

9. In printing I find no difference from the wet plate.

10. All the variation in cold weather is simply to see that the temperature of the silver bath is correct, that is, warm enough, not too hot, and the silvering-room is at least 70 or 80°.

11. The prospects for the coming year are somewhat better as far as I can judge, but we are compelled to work for such ruinously low prices that it is hard on me. Cabinets for three dollars and cards for two, but I get a little better price for groups and copies. If I had not been crippled by a fall three years since I should seek a better locality, but I am remaining here to try to regain my health and I have all the work I am able to do. Everywhere around me the prices were so low that I was compelled to lower mine in order to hold my customers. I enclose a group of small heads, the print I rejected for want of brilliancy but the negative makes fine work. Respectfully yours,

E. P. LIBBY.

## THE IDEAL IN ART AND ITS RELATION TO PHOTOGRAPHY.

BY E. K. HOUGH.

### No. II.

In the early days of photography we who began then, can well remember how much attention was given to its mechanical and

chemical relations; and how little to the artistic; how much more importance in teaching or in learning, was given to the use of the apparatus and the working formulæ than to any theory or principles of art. For instead of the new art being adopted and used by the army of artists already trained, it was, as a rule, disowned and derided by them; as it is largely even to this day. It was, therefore, taken up by hundreds who had received no previous art education, and who came to it with no artistic insight or ambition, but took it up solely as a new and promising occupation, like any other trade; and they were quite satisfied therefore, with making money by it.

But it is not in the nature of intelligent men to long follow any occupation without some endeavors to reach its higher possibilities.

Yet the new art developed so rapidly, with a succession of varied and perplexing chemical problems and formulæ, all requiring close attention and active thought to understand and successfully practice them, that there is little wonder but comparatively few have been ready to reach after other and still more difficult problems until the first were mastered.

But the more thoughtful and aspiring photographers could not avoid the conscious need of art principles to guide them; and they naturally desired to have them reduced to formulæ as their chemistry had been. They wished to be told something definite and tangible to do, that would bring more of art into their daily work.

In response to this desire, books were published, with diagrams and instructions, to produce so-called artistic effects, by opening or shutting such or such numbered curtains under the light above the sitter; thus, in so much, reducing art to formula.

But the need of art knowledge on broader principles soon outran such futile remedies, until now there is among photographers a widespread and earnest desire for any instruction in art principles that can be of use to them in daily practice.

In evidence of this desire, witness the pages of every reputable photographic magazine which, in spite of the vast number of new processes and appliances in photog-

raphy to write about, present a constantly increasing proportion of articles on its relations to art.

And it is encouraging to know that our present condition is somewhat in the order of Nature, for in all forms of art a degree of technical skill must precede the higher artistic development as that great authority, Sir Joshua Reynolds, has taught in regard to painting.

He says: "A degree of mechanical practice, odd as it may seem, must precede theory. The reason is that if we wait till we are partly able to comprehend the theory of art, too much of life will be passed to permit us to acquire facility and power; something, therefore, must be done on trust, by mere imitation of given patterns, before the theory of art can be *felt*."

Thus we see it is in actual practice we must learn the need of governing principles in art before any great further progress can be made.

Having as a class acquired such full command of the practical processes, we are now left free to think of and reach after the "theory of art" of whose need we are growing more and more conscious. And which sense of want is what alone will lead us to take the pains necessary to acquire greater knowledge of it.

One step toward such knowledge and progress is to understand more fully the relations of the ideal to our daily photographic work. Seed that is sown out of season fails to take root, and is lost; but when the ground is well prepared the smallest grain, sown by the humblest hand, may spring up and bear fruit a thousand fold.

It is in this spirit I write. I make no claim to be a teacher of art. I only write these papers in the nature of suggestions that have come to me through years of practical labor, during which I have constantly felt the needs I describe, prompted thus to study up and think out the opinions I shall endeavor to present in future articles. And I only ask for any grain of truth in them, the reception given to wheat when brought to market; the only question being not who brought it, but "Is it good wheat?"

### THE WORLD'S PHOTOGRAPHY FOCUSSED.

PHOTOGRAPHING the phosphorescent and developing the invisible are the present audacities of our art. It can do them all.

At a late meeting of the London and Provincial Assoc., Mr. Cowan exhibited a gelatino-chloride print developed with magnificent blacks upon opal glass without any toning; ferrous citrate was used as the developer. Before it was applied there was no visible image.

At the North London Photo. Society, Mr. F. W. Hart declared that plates which had become somewhat deteriorated by long keeping, could be restored by immersing them in chlorine water, after which the plate was exposed to light and then redeveloped with ferrous oxalate developer.

For unexposed plates he recommended the application of bromine water.

THE Auer-Welsbach Incandescent Light is the new sensation in Europe. In a solution of zirconia and lanthana a lightly woven tube of cotton netting is soaked and so mounted that a Bunsen flame plays through it. Says the *Photo. News*: "Of course, the cotton burns away immediately, and the earthy network that remains becomes brightly incandescent, giving a white brilliant light like the ordinary lime light."

YOU can take in both: Mr. S. Sartain announces that by special arrangement made with the directors of the American Exhibition in London, pictures which may be sent by members of the New York Exhibition can, at its close be forwarded to London, and yet be admitted, although two weeks after the advertised date of closing for admissions.

AN International Convention of Astronomical Photographers opens in Paris, April 16, 1887. All are invited, and, Great Heavens, how thou art to be photographed!

MR. WALTER B. WOODBURY made plaster medallions from gelatine reliefs, fifteen years ago or more, and showed us some lovely examples.

PHOTOGRAPHING A BULLET IN FLIGHT.—Dr. Riegler, of Pesth, has just made a very curious experiment in photography, and one that to many people will appear almost incredible. He has photographed a bullet after it had been fired from a rifle and while it was proceeding with a velocity of 440 metres—rather more than a quarter of a mile—a second. A Werndl infantry rifle was the weapon selected for the purpose of conducting the experiment, which was in every way successful, a perfect reproduction of the bullet being the result. A horse at full gallop, a swallow in its flight, and even a flash of lightning have succumbed to the photographer's art, but this last triumph is still more marvelous.

MR. B. WELLINGTON, a skilful experimenter, has obtained with collodion an isochromatic emulsion eight or ten times more sensitive than a similar gelatine emulsion; Mr. Wellington promises to furnish shortly, more ample details on this subject.

The use of emulsion papers is becoming more and more general; those of Eastman, gelatino-bromide, used principally in obtaining negatives, give very fine results; for positives and enlargements the "Ilford Britannia Alpha Paper" is unrivalled. It gives results comparable to those obtained with the best albumenized paper. A skilful amateur, Dr. Judic, attests, besides, that in his hands Alpha paper has given him very good negatives.—*Le Progrès Photographique*.

INTEREST is being revived in the projected International Exhibition at Brussels, Belgium, before announced. If some good photographers were enlisted to help develop it, it would sooner be fixed.

THE old Bengal Photo. Society (India) has been reorganized under the name of the Photographic Society of India, with over one hundred members.

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### LANDSCAPE PHOTOGRAPHY.\*

BY ALEX. M. RIDDLE.

MY aim, in the short paper I am about to read, will be to lay before you a few things

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\* Read before the Aberdeen and North of Scotland Amateur Photographic Association.



in connection with landscape photography. This refers to photography as practised outside a studio, and I purpose dealing only with it from the practical side, so that while I refer to it, as I have observed it practised by many amateurs, gentlemen present will kindly bear in mind I do so from the point occupied by one interested in securing the best arrangement of subject under the most suitable light and conditions essential to success.

That photography has a charm for many is evident from the great number of cameras I came across in my wanderings, the owners thereof firing off snap-shots on every conceivable subject, and under—what appears to me, as a rule—unfavorable conditions. Yet there is a certain amount of pleasure, even in this, though only the ghost of a picture is developed, as better things can be hoped for the next opportunity. However, I have seen many exquisite pictures by amateurs, gentlemen who practise photography purely for pleasure, indeed, very much superior to the work of some professionals, but I don't think you will find they go in for trying *everything* instantaneously. I am often approached in a knowing sort of way—"Ah! working the instantaneous process, I suppose," and great surprise is expressed when I answer in the negative; but since the use of dry plates became general, the one idea of many appears to me, to do all subjects instantaneously. The results are disappointing, even when good subjects are attempted in a hazy dull day; how much more when done as I saw during the last summer at Rothesay pier! A gentleman, one fine afternoon, from the deck of the *Columba*, directed his camera toward the sun, in his endeavors to secure a view of the town. Everything was in deep shadow, while the strong sunlight appeared to intensify the smoke that hung over the many chimneys. I refer to this as one instance out of many I could bring up of the indefinite ideas that exist as to what constitutes a favorable light for securing a good picture. Had the camera, in this case, been directed in nearly an opposite direction, something good might have been got of Rothesay Bay, with the Cowal Hills in the distance, while a lugsail boat or passing

steamer could have been utilized to break up the expanse of water.

Then the attempt to overtake something beyond the capacity of either camera or lens, such as a tall steeple. With his back to a wall and the camera turned up to nearly the angle of 45°, I have seen a gentleman vainly hoping to make a picture; add to this the fact that the sun was directly at his back, which gave the steeple without a trace of shadow on it.

Then again, some run after animals, and wonder why their instantaneous plates develop almost clear glass, and express surprise they cannot turn out something worth a medal, since some other body does very fine studies of animals.

In connection with the laudable desire to do something good, an incident comes to my mind. While working in St. Andrew's, a gentleman approached me one day and asked if I could direct him to any good subjects in the district. I replied to the effect that I thought he was in the midst of a great variety of very good subjects, adding: "there is the cathedral, the castle, houses ancient and modern, while there is the ever changing sea, with rocks, waves, boats, and, indeed, better material than could be found in many places." He shook his head, and said that was not the sort of thing he wanted, but pulling from his pocket a book treating on composition pictures, added, "Its something of this sort that I want." "Rather advanced for a beginner," I thought; however, I remarked, "there is plenty of scope for your hobby all around. There is life of every sort, industry and indolence, among all classes, from the aristocrat golfing on the Links, to the fisher folks busily baiting their lines or lounging at the street corners with their hands plunged into the unfathomable depths of their pockets—this, with creels, boats, lines, and heaps of mussels, is surely variety enough, but your difficulty will be to secure the good-will of your subjects, which is most important." Whether or not he made up his mind to attempt this, I cannot say, but I found him dodging about after me, as if he had got new light on some of the subjects he did not think worth attempting before.

However, there are one or two elements

of character I consider indispensable to success in photography. I pass very lightly over the fact that anyone who is enthusiastic will know the advantage of early rising; many a good view is got when a large proportion of the inhabitants are snoring in bed. Patience, with perseverance, is said to work wonders, there will be many opportunities for carrying these into practice, if you would make the best of every subject.

When doing work about a town, smoke is very troublesome, and often entails a weary wait. Then a fine reflection may often be secured by exercising a little patience and watching for a brief lull, not to speak of the advantage of quietness when foliage breaks up the foreground.

Then, *in order to secure the best light*, it is often a great advantage to wait until the sun moves round a little, or, more correctly, "the earth moves round." Of course there are many occasions when it is manifestly useless to wait for the calm moment, and, in such a case, it is wise to look for a subject unaffected by wind. But, in any case, be deliberate in choosing a point, and, when decided on, be deliberate in fixing up the camera and exposing, or you may find yourself uncapping your lens before the plate is uncovered; or some fine day you will be exposing the same plate twice, and find out perhaps, after all, that, if a little more care had been exercised, a much more effective point, and that in a far better light, could have been secured.

This brings us to the importance of method in working, and in this connection it will be wise to run over the necessary apparatus, with which it is well to be on very familiar terms. This will prevent us going into the country some day minus the camera screw or perhaps the tripod top, without which we would miserably fail. Have a place for everything, and run over in your mind the operation of fixing up the camera for work, and exposing a plate in order to satisfy yourself that nothing is wanting.

This will bring us to speak of apparatus, of which there is great variety to select from. Not the least important is the stand, as many a good view is lost through a rickety stand. Most of the stands of the folding pattern have this fault, on account

of having only a single limb from the joint downward. I have with me an improved folding stand you may inspect.

A spirit-level is another necessary in getting correct pictures where straight lines come in.

The camera and slide I will suppose you have very carefully inspected, lest any stray light may come in and the unfortunate plate-maker be blamed for sending you bad plates, while the fault lies with the camera not being sufficiently light-tight. Inspect every movement, such as sliding front with the lens screwed on and capped. Throw up or remove the focussing screen, and, with the camera placed in bright sunshine, look through as if about to focus, with the cloth carefully adjusted, so as to keep out all light from behind, and you may, by turning round the camera, discover some little chink you never dreamt of. However, it is always well to work with the cloth carefully adjusted, so as to screen the camera and lens as much as possible. A swingback is also a very useful arrangement, but requires to be very carefully adjusted.

What lens do you use? is a question very frequently asked of me. Well, any good lens will do, providing you don't attempt too much with it. Confine your lens to covering a plate, the diagonal measurement of which is equivalent to its focal length, *excepting* when you have a lens specially made to cover a larger plate, such as a *wide angle* rectilinear. A single lens is good for general landscapes, but many of the single lenses that are going are of a small diameter, and consequently slow. However, for many subjects, this is no objection, but there is satisfaction in having a good lens. A rapid rectilinear is doubly useful.

Now, supposing the slides have been well inspected, dusted, and charged with plates, you will think about trying something. Although it is quite possible to go through the whole operation mechanically, since the dealer sends out printed instructions of the plates being so sensitive, you can expose, bring home, and with so much out of bottle No. 1, and so much of No. 2, you develop so many minutes, and everything is bound to come out right. Well, perhaps they may, and, no doubt, this accounts for some—when

first attempting photography—producing one or two wonderful plates, but how they got them is a mystery to themselves, for they say they cannot do the same now.

We will begin by not attempting anything very great. A friend's house is always a handy subject, and houses being all pretty much alike, we will consider how we can set it off, for we will not be satisfied with planting our camera right in front of it, and filling the plate with the front or front and gable walls. Are there any trees about? as, if possible, we must get them introduced so as to make the picture. Of course, it is well, in most cases, to get sunshine, particularly, if the building is dark, of which, by the way, there are not many about Aberdeen. But with the most important part of the house is sunshine, and just enough shadow to give relief, we notice if the trees are still before exposing, which must be done deliberately and sufficiently long to get details in *all* the shadows without solarizing the high lights.

Suppose we go to the country a bit and try a different style of subject. It is well to remember, in this connection, what constitutes a photographic picture. It is not color but light and shade, and subjects, that appear to many as effective pictures, are of no use for photographing. We want form, and that must be effectively lighted. For general landscapes we want a clear day with bright sunshine.

The selecting of a good point is important. The rules applicable in fixing a good point for sketching hold good in photography, not forgetting that color is nowhere. Though in sketching, anything we fancy may be introduced, in photography we must adapt ourselves to things as they exist, or very nearly so. Look at a good engraving or a good photograph, and while making up your mind not to copy the photograph, you may be sure you cannot exactly reproduce the engraving, but there is something to be learnt from both, and turned to good account the first opportunity for selecting a point. If there are distant hills in the landscape, they will probably show up best if the sun does *not* shine on them when exposing, though, by all means, have sunshine on the foreground and in the middle dis-

tance, and avoid having very large objects in the foreground, or the distant hills will look too diminutive. Be always ready to take advantage of water, trees, rocks, loose branches, tree-roots, or anything at hand to break up a smooth foreground.

If a waterfall is the subject chosen, or if the nature of the day warrants this, for all arrangements in photography are subject to the weather, a quiet sunless day will suit, and in many cases will be found preferable to a day of brilliant sunshine, as in deep gullies and shady glens bright sunshine shows such heavy black shadows that, in order to expose them sufficiently, the high lights are all solarized, but with a quiet, even a hazy day, we can get every leaf, every twig and fern, if sufficient exposure be given.

On such a day as this, some of the beautiful weeping birches on Deeside may be got; haze in the distance will help to make the tree stand out, if you cannot show it with water in the background, so you see there are great varieties of subjects in a day's outing, and if the weather proves unsuitable for one, we may fall back on another.

The beauty of cloud effects, when taken in connection with water, I feel confident is appreciated by all who possess a camera, and, being near the sea, there is abundant opportunity of securing something in this way. For this we must have a cloudy day, but not too many clouds, and, with the sun ahead of us, we can watch for the effective moment and expose quickly. Avoid having the sun blazing immediately in front, though a ray striking the water in the distance enlivens the picture wonderfully.

When photographing on a street or on a road, there is often the objectionable accompaniment of a great stretch of white foreground. The shadow of a tree helps in a case of this kind, if we can secure it; failing this, the shadow of a building. A few buckets of water, judiciously spilt will often work wonders. But the greatest difficulty in street views is mobs of people who want to be "*took*." A few coppers may dislodge youngsters, but it is not an easy matter and often very tantalizing when a favorable opportunity occurs to get some grocer's or butcher's boy, with a white garment of

some sort and a big basket, stand up some twenty or thirty feet from the camera, when you know, by experience, that, however short the exposure may be, he will keep moving. Patience may weary out a few, and this, with a little tact, may overcome the difficulty.

Cattle may be got on a sunless day, even better than on a day of brilliant sunlight, and that with a very short exposure.

Portraiture may also receive a share of attention, and it is possible to turn out good pictures without a specially built studio. The great objection to portraits taken out of doors is they are flat. Now, this may be got over to a great extent by adopting the course I am about to suggest. Avoid setting down your subject back to the wall and facing an expanse of open sky, as this shows the face without a trace of shadow. Reverse the order of things, and set your subject a few yards outside, *say*, the back-door, in a diffused light. If you have no special background, the wall of some outhouse will serve this purpose, and its distance will ensure its being soft. Keep the camera a few feet inside the door, just in the passage. Of course, when making this arrangement, you must necessarily discern when you have got sufficient shadow; a slight movement either to the right or left, or a little farther from or nearer the doorway, makes a great difference, and with care a fine round picture can be secured in this way.

But what exposure do you give? is so often asked, that I suppose I must say something about it, though to fix anything definite is misleading, as no two subjects are exactly alike, and the same subject would require longer or shorter exposure at different hours of the day. An improperly lighted subject will not show up well, whatever care you bestow on it, and one with heavy dark shadows in the immediate foreground, and the distance flatly lighted with brilliant sunshine, need not be attempted, as, if you expose the foreground enough, the distance is lost; or get the distance right and the foreground is clear glass. Take such without sun altogether, if you cannot get the light and shade sufficiently distributed. Also avoid exposing when the sun is at the point that leaves you without any

shadow, and avoid exposing when the sun is so far ahead of you that everything is in shadow, excepting the house roofs and the level road. As exposure plays a very important part in the production of a good print, it is well that this should be sufficiently long to bring out all details in the shadows, and ought to be so timed as to allow of development being carried out without either forcing or restraining. An underexposed plate is waste, excepting in so far as you learn to expose more correctly the next time. A full exposure—that is, an exposure that admits of a considerably smaller proportion of ammonia being used than the plate can bear—will allow you greater control, and this is a feature I believe very much overlooked in dry plate photography. It is so much out of this bottle, and so much out of that, and develop so long—well, you may as well put them into a churn and turn a handle. Just see how hard some pictures turn out, and a nice soft thing might have been got, had the development been regulated by a former subject. Then, be careful to develop until all details are out, which, in many subjects, means that you don't make up your developing solution of the strength that would show your high lights as dense as a board by the time the details in the shadows come out. Many a good picture is hopelessly spoiled in development, while many an overexposed plate may be saved with care and patience.

Those who are familiar with the working of the collodion process, must have noticed there is a difference between a collodion and a gelatine negative, to such an extent as, I believe, may never yet have been fully taken into account. For instance, a gelatine plate that looks like a good old collodion plate is almost useless for ordinary printing, whereas, a gelatine plate, that, judging by a collodion plate, would be useless, prints amazingly well, and leads many to be satisfied with, I think, too thin negatives.

I have always developed with ammonia and pyro, and find a full exposure gives the best picture, using as little bromide as possible. After fixing, I prefer immersing the plate in a solution of protosulphate of iron

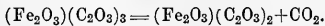
and citric acid, as, in my estimation, it removes yellowness better than anything else, so after washing thoroughly and drying, you will have time to spot and prepare for printing, in connection with which I see

Mr. Sang is expected by and by to clear away all the difficulties, and make this process easy and delightful to yourselves and your friends, who will look upon the production of your camera many days hence.

## Editor's Table.

THE little article "Measles Again," which we published some time ago, has been printed as a circular by an albumen paper firm, and accompanies their goods.

IN the article in our last issue on "The Platinotype," Mr. D. S. Huntsman, the author, desires to make a correction. In the formula of ferric oxalate,  $O_3$  is omitted. The reaction is—



MR. J. M. BRAINERD, owner of one of the largest galleries in central New York, writes us: "I have received much benefit from your teachings during the seventeen years I have been engaged in the business, and observe you grow more enterprising each year; therefore am proud of you as the representative of our profession."

PICTURES RECEIVED.—MR. H. RANDALL, of Ann Arbor, Mich., sends us some splendid views taken around that city. Some of the landscapes, quiet, open trees and waters, we have very seldom seen equalled. It would almost seem as if nature *did* compose more kindly at Ann Arbor than elsewhere, for they are nearly faultless pictorially just as they are, and full of feeling. The artist shows strongly through them. A grape picture makes a fine study. A pretty souvenir album of views of Ann Arbor is one of the gems of the collection. Mr. C. E. ORR, Sandwich, Ill., sends us a laughing negro entitled "Ya Ya!" who is irresistible. All who see must join his merriment. Mr. J. S. MASSEK, Grand Rapids, Mich., sends two large photographs of furniture, which could not be better of their kind—clear, sharp, infinite in detail, showing every twist in the beautiful grain of the wood, every touch of the tool. They are ideal photographs for commercial purposes. Mr. E. P. LIBBY, La Harpe, Ill., sends a photograph of three child heads, well exposed and nicely lighted. We have received from M. KERS KEMETHE, Washington, some portraits of the Hungarian painter, MUNKACSY. They are most excellent work, both in expression and manipulation, and are also, of course, very interesting,

besides bearing the approval of the great artist himself.

THE enterprising Chicago firm of N. C. THAYER & Co. have issued another mammoth catalogue, in an extremely novel and handsome cover. The front bears a wonderful and well arranged group of apparatus and requisites, in which the photographer will see everything he could possibly need, including the journals; the back a cut of their six-story building. The treasures of information inside, space forbids us to recount; there is simply everything.

THE first annual exhibition of the combined work of the amateur photographic societies of Philadelphia, Boston, and New York, will be held in this city March 26 to April 2. Besides club members, many foreign and unattached amateurs are expected to be represented. It is hoped the exhibition will be a thorough success, and it has in it the power to give photography a fine lift forward. We heartily wish the enterprising committee success in their labor.

*Queries*, that bright and popular repository of information, notices *Photographics* thus:

"Last month we had the pleasure of calling attention in these notes to Edward L. Wilson's *Photographic Mosaics*. We have received from the same publisher an original work from his pen, entitled *Photographics*; a series of lessons, accompanied by notes, on all the processes which are needful in the art of photography. The work is illustrated throughout with phototypes, photo-engravings, and woodcuts. As a work of information it can be consulted with like profit by the artist of all degrees or positions, whether painter, wood engraver, or photographer. In his foot-notes Mr. Wilson refers to over two hundred authorities, showing fullness of information and study surprising in its extent. We reproduce on another page one of the illustrations contained in the work."

WE have received from Messrs. W. H. WALMSLEY & Co. a circular thick with testimonials of their new Beck lenses. For a new lens, coming

into the field against old and tried competitors, its success has been wonderful; and from its work we have seen, has evidently been won strictly on merit. We congratulate Messrs. WALMSLEY & Co. on their enterprise and their excellent lens.

WE have received a new and splendidly illustrated edition of *How to Make Photographs*, published by Messrs. E. & H. T. ANTHONY & Co. With two such heads as the veteran ROCHE and Dr. ELLIOTT of the younger generation, the book ought to contain a great deal of use to the learner—and it does.

CORRECTION.—On page 103 of our last issue there is an error (whether of the printer or the translator we cannot say). In the translation of M. Denayer's article on "Photo-micrographs," Mixture B should read as follows:

White Gelatine, very hard . . . 20 parts.  
Distilled Water . . . . . 100 "

Our translator says, "I see that Mr. Walmsley objects to the term photo-micrographs, and says it should be micro-photographs. It seems to me one term is as good as the other. The French use the first form." There is a difference, and we will take occasion to explain it presently.

"Good work, or money refunded," is the "reference" sent by Messrs. HARVEY & LYLES, 271 Wabash Avenue, Chicago, Ill.—"the first and only firm making photo-enlargements on Steinback paper by electric light" in that city. We wish them great success. They have both been in our employ, and a more energetic, capable, and straightforward twain could hardly be mated together. We are sure they will do well, and find their business to be more and more enlarged as they become known.

"A CHANCE IN CALIFORNIA."—We personally know the party who advertises under this head, and believe he will not misstate. We have sent our magazine to him for many years, which is a sure sign of prosperity. Those seeking a milder climate will do well to look into this opportunity.

VERBECK's novel picture clasp is a useful invention just introduced by Messrs. E. & H. T. ANTHONY & Co. It consists of a series of clasps, hinged together by a chain link similar to the back of an album. Cartes or cabinets are inserted in these clasps, and thus stood on edge, make a very attractive mantel or table ornament—an open album, so to speak.

MESSRS. ZIMMERMAN & INGERSOLL, of St. Paul, Minn., have sent us some remarkable views of the Ice Palace and Carnival Scenes. Fireworks scintillating in the air; men caught in mid-space turning somersaults, and fantastic processions are some of the accessories of the well-done views.

MESSRS. RUTLEDGE & MECK, Kokomo, Ind., sends us the following just as we close for press. Keep it going:

LOOK OUT FOR HIM.—One "Thomas" who represents his home as Cincinnati, Ohio, and also to be a first-class workman with all the new and latest dodges in photography, travelling over the country as such and getting a soft snap wherever he can, is dishonest. Thomas is a large man, weighs about 190 pounds, 37 years old, full face, wore a light auburn moustache, dark gray eyes, dark auburn hair, a little bald, wears a skull cap when at work; wore a black soft felt hat, dark cassimere suit, dark cassimere overcoat, in one pocket of which he carried off one-half pound of nitrate of silver for us, besides leaving an unpaid board bill at the hotel.

ORGANIZED January 25, 1887, the Cleveland Camera Club, with the following officers: Rev. Dr. C. S. Pomery, President; Dr. Robert Dayton, Vice-President; Arthur D. Cutter, Treasurer; and William T. Higbee, Secretary. The Club holds its meetings the first and third Tuesdays of every month, at No. 13 Euclid Avenue. The Club has twenty members, and is steadily increasing.

THE very latest form of lantern is the new improved Stereopticon made by ROBERTS & FELLOWS, Philadelphia. It is built on an entirely new model, in which twenty years' experience is made use of. It is lined with asbestos, has an extended draw, jets of a new pattern, and many other good features which are set forth in the circular of the firm.

PLEASE DO NOT FOLD—I BREAK.—Our last issue was mainly wrapped in a new form of wrapper, *i. e.*, a narrower one; and the words above printed on each side of the cover, with the hope of melting the hearts of the careless Post-office clerks who destroy so many of our pictures by folding them. This plan was kindly suggested by Mr. J. E. Steward, Dennison, Ohio, and is permitted by the Post-office authorities at Washington. It gives our suffering patrons something to point to, and we hope it will help to remove a great evil. We shall be glad to hear if it works.





Max C. Wiscar.

The Old King  
LITTLE ROCK, ARK.  
THE LITTLE ROCK CO. ARK.

New York.



THE

# Philadelphia Photographer.

EDITED BY EDWARD L. WILSON.

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[Translated for *The Philadelphia Photographer*.]

## TO OUR READERS.

[ONE of the handsomest photographic magazines in the world and one of the best is the *Bulletin de l'association Belge de Photographie*, published in Brussels. The January issue comes to us in a new and unique cover, and inside we find the following letter to the readers by the editing committee. We were about to make some extracts from it, but it contains so many suggestions that we would fain remark to our generous readers that we have concluded not to garble it, but lay it all before you. We want *your* help and sympathy in *our* work, for each year our rapidly growing art makes it more and more difficult for one head and mind to keep alongside. Therefore, please consider this address of our Belgian *confrères* as a personal one from us to you.—ED. P. P.]

Every year at this time the Editing committee of the *Bulletin* addresses its readers, with the usual good wishes, wishing, however, inwardly, that these felicitations should reach a still greater number of the members of the Belgian Association of Photographers. Then the committee makes a little confession, throws a retrospective glance over the year that is just ended, and finally, promises—promises. Here is where the difficulty commences—to promise in January, the month of Janus, the god *Bifrons*, a month of which Panard did not fear to say:

“It is the first of all in which we lie the most.”

Which explains why it is that the first month of the year was consecrated to Janus.

Unlucky coincidence! inasmuch as to all that we might promise perhaps it might be said: January greetings. Therefore, we make no promises; we are going to have a little talk with our readers and tell them what we intend to do.

The *Bulletin*, as it is known, is essentially a work of amateurs, who have no other object in view than the progress to be realized in the photographic art, and which serves to bring to the association new adepts. Conceived outside of all commercial ideas, the *Bulletin* wishes to make known month by month what is being done in the photographic world; in this manner it keeps every one acquainted with the new applications and processes, and the progress realized. We have here its veritable object, essentially practical, as is seen. Have we succeeded in accomplishing this task? We leave to our readers the answering of this question.

Thanks to the obliging concourse of the members of the Belgian Photographic Association, thanks to the precious aid given to us by our foreign friends (they are numerous, in truth, but, unfortunately, some failed us last year), the number of readers of the *Bulletin* has increased every year; let all friends receive our best thanks and especially, continue to deserve them. It has always seemed to us that our *Bulletin*, to be complete, should realize a special type; it should be written by all its readers. We might, it is true, imitate certain foreign publications, in which, to excite interest,

the editors write to themselves, under a borrowed name, a long letter, advocating or subverting certain facts, for the single purpose of making a controversy.

Certes! the method is ingenious but it would have but little chance for success. Our amateur photographers are, above all, men of action, and, unfortunately, it is rare to find any willing to leave their laboratory who, with pen in hand, will take a seat at the writing-desk.

And, nevertheless, how many ingenious remarks, how many precious observations are lost because they have not been put down on paper; let each one think of those who have the same taste, and it must be admitted with regret that so few communications of its readers appear in the *Bulletin*. Let each one reflect that it is his duty to help those who have assumed the responsibility of the material portion of the *Bulletin*, a task which absorbs all their time and care, and may this aid take not only the form of platonic sympathy given by a few thanks; all must, without hesitation, write down their observations and make them known to the editing committee. We feel sure we are not preaching in the desert; our appeal will be heard and our *Bulletin* will become really the organ of the Belgian Photographic Association.

On the other hand, the committee will do what it has always done, and it will try to do still better if it is sure of getting the help of all. And in this connection we most sincerely hope that our foreign friends, who have somewhat neglected us last year, will think of that *Bulletin* of which they are the godfathers and adopted fathers. Our looks turn toward Paris, toward Vienna, and this year, we hope to see something else coming besides the powdering sun.

We have scolded everybody a little, but we hope that none will bear us malice; our desire to do better is our only reason for our passion. Our *Bulletin* has passed the bad stage, for the superstitious, of the thirteenth year; it enters into its fourteenth year. A difficult age, it is said; let all watch over its safety.

1886 was, for photography, a year not remarkable for any great discovery. It is not possible to improvise every year a revolution like that produced by the introduc-

tion of the gelatino-bromide process, and happily we believe, as it is only now that the new process has been put in practice. It is now that the improvements of which it is susceptible are being looked for; it will be necessary to seek for more energetic developers giving instantaneous clichés that are more complete, and more solid. Man is thus constituted that he always wants more; he is not contented with what he has, he still wants what he has not, and still further. It is for this reason that gelatino-bromide should produce still more than it has already given.

In France, in Germany, in England, in America, everywhere, the attention of photographers is directed to this important point, the reproduction by the sensitive plate of the relative value of tones. Isochromatic or orthochromatic plates are the first step in this direction.

And, since we speak of dry plates, our readers will allow us again a little pessimism. It is true that the new process has had for immediate result to considerably increase the number of adepts of photography, and the resources of our art, but, on the other hand, how many indifferent results, without artistic value or significance. It is necessary, therefore, that all should endeavor to obtain not only that manual dexterity of the skilful operator, but also the correct taste, the knowledge in the choice of subjects which are the appanage of the artist. Then only, can it be said that one practises the photographic art. What endless resources are now within reach of the amateur photographer! The positive processes themselves are now undergoing radical transformations which render them more practical, more expeditious; the magnificent results obtained on gelatino-bromide, gelatino-chloride, etc., papers, attest the progress attained in the printing processes. Shall we speak of printing with fatty inks? There is hardly an illustrated journal that does not have recourse to photography.

In the scientific applications of photography, the year 1887 will see the commencement of the superb work which consists in making a map of the sky by means of photography. We have done as Janus did, one of whose faces was turned toward the past

and the other toward the future. We hope, however, that the definition of the poet will not be applied to us.

Let us return to our projects for 1887. Two of our colleagues have undertaken to make known to our readers two interesting works, to be published separately. The first is the translation of Dr. Eder's work, *Die moment Photographie* (Instantaneous Photography). The second is a translation of a new book of Mr. Robinson, *The Studio*.—  
EDITING COMMITTEE, *Bulletin de l'association Belge de Photographie*.

### COMPOSITE PHOTOGRAPHY.

AN interesting paper on this subject, carefully and admirably illustrated by Mr. John T. Stoddard, appears in the *Century* magazine for March.

Our readers have been made familiar with this subject by the frequent articles which have appeared in our pages and in other periodicals from time to time since Mr. Francis Galton made his suggestions as to the possibilities of "composite" or "type" photography.

But Mr. Stoddard makes ordinary portraiture the main point in his paper; tells his methods of working, and describes his apparatus, so that any who are interested may follow along in his experiments.

The following composite portraits illustrate his paper:

1. Seven members of the class of '84 of Smith College (from negatives taken in June, 1886).

2. Thirteen members of the class of '83 of Smith College (from negatives made in June, 1886).

3. Forty-nine members of the class of '86 of Smith College (from negatives made in December, 1885).

4. Co-composite made by combining the three composites of members of the classes of '83, '84, and '86—a group of sixty-nine.

5 and 6. A full face view and a profile of twenty-seven members of the National Academy of Sciences.

7. Family of eight—father, mother, five boys and a girl.

8. Composite of "Monday Evening Club," Northampton, Mass., of ten gentle-

men—two clergymen, two physicians, two lawyers, three college professors, and one manufacturer (no photographer); average age, thirty-five years.

Every one of these pictures is as full of suggestion as it could be, and every one of our intelligent craft should read Mr. Stoddard's paper. Yet, we do not see what help to science there is to come from this entertaining application of our art, or what substantial thing it is capable of proving. In our opinion the master face of the group is always bound to assert itself, and by the master (or mistress) we mean the first image impressed upon the film—the first one exposed. Sometimes the stronger negative may rule. Of course, each after exposure will make a change, as the hands and fingers of the sculptor modify the clay form upon his pedestal—yet it is our belief that the first exposure becomes the ruling impression. We think this can be seen in Figs. 3, and 4 of Mr. Stoddard's illustrations. There is one face—unmistakably one—that impresses the observer first and most and it is not the necessary result of "composite" or "type" photography. If the order of taking was changed the resulting composite would be changed, a fact proven by Fig. 2. We do not discover the master face there, that is seen in Figs. 3 and 4. Of course, when any prominent article of dress is worn as the "dart" breastpin of one of the class, that will also be seen prominently. And then, in any case would any one prefer a "composite" picture to single pictures of one's classmates or fellow-members of his club? Is this condensed milk—this beef-tea—this crematory and canopic vase style of photography bound to become popular? If wall space in one's "flat" is scarce, and the price of \$12 frames with a crayon advances, of course there will be an advantage in compositing one's "family of eight," but it will puzzle one (see Fig. 7) to tell whether it is mother, father, sister, or brother whose portrait hangs before one. The thing is too chameleon-like—it makes one figure blind. We note another curious thing in 7 and 8, and that is, the impressions one gets of the age of the persons whose "type" is represented. In 7 the boys have it surely. They rejuvenate father

and mother and the strongest representation is that of a sober, sedate fellow of about twenty-eight. Mother and father are gone. The sister only influences the hair a little. Yet, when we view it again we are prone to exclaim with Dr. Holmes—

“Has any old fellow got mixed with the boys?”

In composite 8 there must have been some prematurely old men of thirty-five since the composite gives a rather careworn overworked face verging on to forty-five. When looking at them for a friend, one becomes as confused as the merry Celt, who, stepping aboard the steamship at Queens-town, en route for America, said to the officer, “Heigh! Captain! are you the cook? You look so much like the steward I thought you was the chambermaid.” Many of our readers will, nevertheless, take up this line of investigation, and there is much for them to do. The cheap John and the reasonable artist could be combined and probably result in better prices.

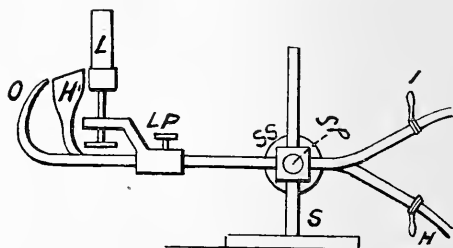
The Western dealer and his Eastern competitor could be combined and fewer sore throats result. The dry-plate maker—some bald headed, some with bushy hair—could be composited and a quality of plate result which would work regularly and uniformly and develop successfully every time. There is a wide field open for the benign and softening influence of composite photography. As Mr. Stoddard truly says: “The most obvious application of it is in the field of ethnological research.” “Composite photography gives, further, a means for obtaining typical representations of groups illustrating health and disease, or the influence of occupation or profession.”

### BARDWELL'S OXY-HYDROGEN BLOW-PIPE.

Having occasion for a safety or blow through jet, and finding it would cost from fifteen to twenty-four dollars for a pair, I concluded to make a set, and after having done so, they worked so much to my satisfaction, that I thought a description of them might interest some of your readers, so I send you a pen and ink sketch and description. The novelty of the jet consists in the manner of passing the oxygen through the hydrogen gas. The oxygen

jet has an opening of one-twentieth of an inch. The hydrogen is supplied by a small pipe, on the end of which is a tube of larger size pinched at its outlet, so as to form an opening three-eighths of an inch long by one-eighth of an inch wide, slanting upward toward the lime; the pressure of the hydrogen being partly relieved, and the shape of the opening allows the oxygen to pass through the hydrogen in a very satisfactory manner, and the result is an excellent light. No matter how sudden the oxygen may

FIG. 1.



O. Oxygen pipe. L. Lime. H. Hydrogen pipe. Lp. Nut binding lime pin. S. Stand. Sp. Nut binding jet to stand. SS. Plate allowing end of jet to tip up or down in centering. H'. Hydrogen outlet.

FIG. 2.



be let on or off, there is no snap. The jet works its best under the following conditions: Lime soft, the oxygen striking the lime at an angle of fifty degrees, and at a distance from oxygen jet three-quarters of an inch, and at one hundred pounds pressure. The inclination of the oxygen to the lime is fifty degrees, but I find the hydrogen lifts it so that the angle is nearer sixty than fifty degrees. The limes should be small in diameter, pure and free from dark matter, and soft; and although one hundred pounds pressure I find no hissing. I have used a soft lime over thirty minutes without need of turning. I have to thank Lewis Wright for hints on the above.

Yours,

JEX BARDWELL.

### THE COMING CONVENTION.

If putting one's heart in one's work is conducive to success, then the Chicago Convention is going to be a great and glorious affair, for the amiable and worthy President is devoting his energy and thought to that end. Mr. G. Cramer is a man of large experience, not only in our art, but with men of business, and well understands the methods which must bring about results from the coming Convention that will not only please those who are so fortunate as to be present, but results which will go on and on disseminating good among the craft over the whole country during the whole of the following year. In our communications from him we have learned that such is his desire, and all of us know that a thing wanted earnestly is at least half accomplished.

There are a number of conflicting circumstances existing this year, but if there is a disposition on the part of the craft to drop differences and work for the common good, these matters will fall to the ground like chaff, and prove of no practical account.

Already the would-be medal winners are busied preparing their exhibits, and, of course, all the medals will be worn.

In another part of this department some communications will be found which are worthy of discussion, and we wish that they might be given such attention through the medium of our magazine. We are thoroughly and loyally in full sympathy with the working photographer in everything that concerns his welfare, and we want to see the most possible good done for him by the Convention and its attendant exhibition.

We believe it is the desire of President Cramer that much practical good shall be done, and no pains spared to secure it. It would not be possible for every one to view things as he and his staff do; but whatever the differences in method and in means are, the end desired will be just the same. The complete arrangements cannot be yet announced, but it is believed that no element of good will be overlooked. The Exhibition will, we trust, be thrown open at once to the public. Some indulge the sentimental

idea that the crowded attendance of the public interferes with the profitable inspection of the exhibits by the photographers. To us this idea seems an absurdity. No photographer who attends that Exhibition will profit more in any other direction than he will by moving around *in cognito* among the public attendants taking in their criticisms and discussions upon the exhibits. New and wider views of things will thus be imparted to him, and he will come away from it a wiser and a better man—a man more fitted to do his work, even though it comes to him through a depression of his own blessed conceit. Then let us open wide the doors and let the dear public in—yea, force them to come, if possible.

May we reëcho another suggestion? It comes from an interested member of the P. A. of A., with the request that we second it. He seems to think it an unfair thing to be debarred from spending any and all the hours he desires in the Exhibition Hall, unless the management takes pains to provide him something equally profitable for his attendance upon the Convention sessions. Those who take no interest in parliamentary discussion or constitutional dissection feel that they have come too far, at too great a cost, to waste their precious time on matters of no personal interest to them. We would suggest that a rule be made at the beginning of the Convention that all business affairs unattended to at the end of the first hour of every or any session be laid over until the next, or, better, referred to the Executive Committee. This would give the President the power at the end of the hour each time to sound his inexorable gavel and make all things give way to matters which concern only the practical and technical work of the art we all love better than rules of order and blunt points of parliamentary rule.

"The most possible for the money" is not an unreasonable demand, and many are straining themselves to give it, every day of these low prices.

May it also form a part of the plan of the management to see to it that something grows out of the next Convention that will be of some service to the world of sympathetic fellow artists who cannot be in at-

tendance. It is true that a certain number of exhibitors will bear home the offered medals, but that will only benefit a very few. The *whole* should be looked after, and some of the dues paid into the treasury expended for that end. We are sure that the amiable President must have a great quantity of suggestions communicated to him, so we desist. He cannot follow all, but that he means to do all in his power to make everyone share the good and profit of the coming event, no one need have a single doubt.

[Translated for *The Philadelphia Photographer*.]

### EXHIBITION OF THE PHOTOGRAPHIC SOCIETY OF THE NORD AT DONAI, FRANCE.

THIS society had its first exhibition in July last in one of the halls of the Mayor's palace which the municipal administration had kindly put at its disposal. From the report kindly sent us by the Secretary, we have gathered much useful information. His remarks upon the practice of our art are so excellent, that we cannot refrain from sharing them with our readers. We are glad to know too that among those who received medals were Messrs. Gaston Tissandier and Gauthier Villars.

Our esteemed colleague says :

The results obtained were remarkable and if we did not fear to make use of an old cliché from which many positives have been printed, we might add that they have far exceeded our expectations.

The greater part of the success is due most certainly to our President, M. Desmarests, who by his activity obtained exhibitions from all parts of France, and to the committee having charge of the installation and that so successfully grouped the works sent. All the different branches of photography were represented, and in seeing such a complete collection of works of the highest value, we are tempted to give to photographic science the name of art.

The practical means that he has at his disposal allow, it is true, the operator to be without the knowledge of drawing or the understanding of color, but he must certainly have the sentiment of composition

which is one of the most important qualities of the artist. A person without experience may make a landscape or a portrait, but the skilful photographer alone can make a *good* landscape or portrait. He certainly cannot change the place in which the picture is to be taken, nor correct by more or less sincere manipulation the features of the sitter, but he can choose the most favorable light to show to the best advantage the qualities of his subject and place his apparatus, if he is taking a landscape, so as to obtain the first planes which meet the sight and put the more distant objects in their veritable light without giving them too little or too great importance, and finally he can select in the field of his objective one corner in preference to another to secure the harmony of the picture. If he is to make a head he should not only follow the precept of the sage who says, "that we must always look at our friend from the best side," but he should also correct what may be defective even in this best side, so as to render the face more beautiful whilst at the same time preserving the likeness, result difficult to obtain, but of which none will complain and possible even with the least pleasing features. Now to see which is the best side of a head, to seize the most life-like expression and the position or lighting that can beautify it one must have something of the gift which goes toward the making of the artist. In making landscapes it is not only necessary to thoroughly understand the play of light and composition, but it is also necessary to possess that particular turn of mind, now called in France as well as in England, *humor*, as more attention is paid by the public to the subject than to the execution itself. Certes, we have here, a branch which offers the most charm to the amateur. Inasmuch as it enables him to preserve the remembrance of what he has seen and to unite in an action at will friends of whom he can indicate by some detail of attitude a characteristic trait or the predominant taste. The professional photographer can rarely meet with complete success in this line. The customers who come to him to be grouped are always more or less ill at ease in their Sunday clothes, their principal preoccupation is to get their money's worth, and no matter

what may be done they will still think that the stiff, awkward pose is the one best suited to their style of beauty. In proof of this it is only necessary to examine in the show cases of our best operators a marriage group, to see how little those who are there seem to enjoy themselves.

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### THE TRIUNE EXHIBITION OF THE AMATEUR SOCIETIES

IN a week from the day of our issue the first exhibition of the amateur societies of Boston, Philadelphia, and New York will be astonishing the delighted public of this city, and from what preliminary opportunities we have had to examine, there will be good reason for the delight of the public. In some respects it will be the most important exhibition that has been held in this city in any art-line for many a long year. It will show what can be accomplished by a number of earnest people who practice the most wonderful discovery of the world for simple diversion. We hope every photographer who practices the same art as his means of gaining a livelihood, who conveniently can, will come and examine these pictures. For a time, allow the disapproval of the amateur to lose its influence, and come and see if you cannot make him pay you back for what loss you think he has caused you. Our word for it, you will be profited.

All "amateurs" are not persons who go about the country interfering with your patronage, practical plodder. We know them here as bankers, publishers, editors, artists, engravers, draughtsmen, merchants, ministers, physicians, architects, and lawyers, and a more harmless, innocent set, we rarely meet. Photography is their diversion. As a rule they are intelligent, and they use their brain power, even in this, their play and pastime. Resulting are some pictures which are full of suggestion to the most practiced of us all. Come and see them. In a week after you read this, the opportunity will be gone—the Exhibition will be closed.

We shall endeavor to gather some lessons of practical value for us all from it, and

present them here. Mayhap one or two gems of the collection may find their way into our collection of embellishments by one process or another. We learn that a number of very attractive exhibits have arrived from abroad—an additional reason for those who can conveniently, to visit the Exhibition before it is forever too late.

Surely the joint effort of three such important societies should not go by without giving photography an immense lift in the eyes of those who patronize it. We shall see. The appointed judges for the Exhibition are Messrs. James D. Smillie, E. Wood Perry, Jr. (a distinguished figure painter), C. Y. Turner, George G. Rockwood (the veteran photographer), and George C. Cox. We trust they will make it a part of their work to prepare and publish a *critique* of the prize pictures at least.

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MR. F. E. IVES has an article in the last issue of the *Journal of the Franklin Institute*, describing his new application of our art in photographing by heat. He receives the heat-image upon a tablet coated with phosphorescent paint; this in contact afterwards with an ordinary sensitive plate gives the impression a positive, by the way, not a negative. Photographs of a German silver key-check, and of the lime-light spectrum, thus secured, were exhibited. See page 180.

DR. CROOKSHANK, of London, has demonstrated another advantage for isochromatic plates. He obtained micro-photographs of bacteria without previously staining them with aniline, as is usually necessary.

AN English amateur has had his rubber storm-coat fitted as a changing-bag, by adding an elastic to close the neck around the arm of the operator, and another around the bottom seam.

THE *St. Louis Photographer* is again suffering a series of communications on "The Price Question, considered from a business standpoint." *Mon Dieu!* There is only one way to consider prices, and that is to raise them.

**FIGURE LANDSCAPING.**

OUR shrewd readers have already discovered that there is method in our conduct of this magazine so far as special topics are

coming season to figure pieces—out door groupings, etc. Those who attend the coming exhibition in this city will find out what we mean by an examination of some of Mr. Geo. B. Wood's studies, sure to be there.

FIG. 1.



The Tramp.

concerned and especially in connection with our embellishments, the desire being to make them as useful as possible as well as ornamental. Now, as the landscape season approaches, our minds turn toward what will help in this direction. The start was made in the closing paper of our last issue.

We now follow the matter right up with

There is more delight in such pictures than in any other class.

A few hints and points as to their production.

In a dramatic representation there must be a hero or heroine, who sustains the principal parts, and to whom all the other characters belonging to the scene, however subordinate, have a due relation.

FIG. 2.



Sheep Shearing in the Bavarian Highlands.

a sample of landscape work and Mr. Dallmeyer's useful table.

Added to this, we desire to express a wish that more attention might be given the

The same rule must govern the arrangement of figures in a pictorial representation. There must be one who, as the hero of the story, occupies the centre of the picture. His position, attitude, and expression should give him a marked distinction from others introduced, who are merely his attendants, and should be made to appear as subordinate characters. The principal figure should receive

the strongest light; the greatest force and effect that can be given by what most attracts the eye. The other characters introduced should then receive light, color



and expression, according to their relative importance in the group, or their distances from the centre.

How carefully these rules may be followed will be seen by reference to the drawing from Mr. Eastman Johnson's admirable painting "The Tramp." It will bear thorough and critical study. It is a high example of art, and yet not beyond admirable imitation by the camera.

In regard to the number of figures introduced in a picture, the best artists are governed by the same rule as the best dramatic writers, who include in their compositions the smallest number possible. Nothing is so injurious to effect as a crowded picture. If the subject requires the introduction of many figures, they should be distributed in masses or groups in different gradations, all indicating a subordinate relation to one principal group or mass, which should occupy, in the centre, a place corresponding to that of the principal figure or personage in a composition, including three or four figures. In some of the best compositions of the best masters, a single group of four or five figures is found sufficient to tell an interesting story, and to display great artistic ability. The object in breaking a composition into groups is that the eye, in passing from one to another, may, by having a distinct classification of the parts, easily comprehend the whole. When a mass of people are crowded together, and no prominence given to any one person, or any number or persons divided from the rest with reference to the effect of gradation, it is then merely grouping, not composing—a distinction which it is important for the artist to bear in mind.

Mr. Walter Shirlaw gives us an example of a rather overcrowded composition in his painting, "Sheep Shearing in the Bavarian Highlands." The grouping and lighting have been carefully managed, and yet there are almost too many figures for a photographic attempt. Of course, when the knight of the camera is called upon to photograph a large assemblage, he is not expected to bring all the parties under the control of art principles, and yet he may do much towards it. If the principles are

within him, they will spring to his assistance on all occasions.

[Translated for *The Philadelphia Photographer*.]

### THE NEW EOSIN SILVER PLATES.

THE editor has recently referred to the great advance in the color-sensitive process, and for this we must in the first place take occasion to thank Obernetter for the introduction of the color-sensitive plate without yellow disk, which was based upon the use of the eosin silver discovered by me as a stronger optical sensitizer.

Since the month of June, last year, when Obernetter published the first receipt for a color-sensitive process without yellow disk, and exhibited the first comparative landscape pictures made with eosin silver plates, the importance of the color-sensitive process has undergone a decided change.

Formerly these were only used for reproduction photography. Portrait and landscape painters, and others, did not concern themselves with them, although in numerous experiments they proved successful in portrait, landscape, and architectural work.

Now the extraordinary importance of the color-sensitive plates in landscape is so strikingly shown that no doubt can be entertained of their general introduction.

This was finally accomplished by means of comparative pictures. It is necessary to do as Obernetter did, and as Goebl, in Witten, and Schlitzberger, in Bichfeld, after him; that is, to take the same landscape first with ordinary and after that with colored plates; then is first seen the enormous superiority of the color plate. In this case the new eosin silver plate was not needed even, as the examples given show; then an azalin-bathed or erythrosin plate with yellow disk sufficed, or even a still less sensitive plate, colored in the emulsion, in case one exposes long enough.

The elimination of the yellow disk is only a part of the advantage. The still greater advantage lies in the high sensitiveness of the eosin silver plate, which, under certain circumstances can amount to double or three times that of the mother emulsion.

Obernetter and myself have succeeded in completing instantaneous pictures with eosin-silver plates now when the winter sun at 12 M. is no brighter than daylight at 7 P. M. on the 21st of June; while with ordinary plates only the brightest lights were obtained.

This high sensitiveness secures another advantage to the eosin-silver plate, when it reaches a correct toning.

Too much attention cannot be called to the fact that by the introduction of this new process bad results will be avoided. Many have written to me privately. One says that he has not noticed much difference in landscape proofs taken with colored plates and with ordinary plates. That I can readily believe, for at present nature is not colored as much as in summer, but gray, and the color-sensitive plate cannot prove so effective.

Another writes that he obtained spots. That is no wonder, for there are dry plates in the market the backs of which are so dirty that particles of dirt loosen in the bath and settle on the front side. This can be helped either by flowing the washed plate with color-solution (of course, all in the dark room), or by a first bath in water to cause the particles to float off beforehand.

A third sends me an erythrosin plate which gave no results. By examination this proved to be no erythrosin, but impure eosin.

It is a fact that it is difficult to procure erythrosin, still more Rose Bengal. These impurities annoy less if dye alone is used; but they are very disagreeable if silver salt is added, as is necessary in the new plates. Every silver residue here increases the faults, and therefore I have recommended that only one-third of the quantity of silver be used that the dyeing materials would permit for the full equivalent weight. Which dye, or which mixture of dyes, is best for the new plates, must be determined by successive trials.

Whoever does not possess good Rose Bengal should take erythrosin alone, or in mixture with eosin, according to receipts given in "Phot. Notizen," No. 263. The quantity of dye should be measured according to the emulsion. Each bears a different proportion. The quantity of silver is increased according

to what was said above, and through it, the sensitiveness also; but in this great care is necessary. The plates last at most a week.

Lately Obernetter and myself have used Perntz emulsion plates, which last over a month, and therefore there is a pretty sure prospect of the trade handling these plates. The developer is very important. Obernetter recommended pyro-soda ("Mittheil." No. 2, June). I have used, for the most part, the developer recommended by the firm of Sache:

1.—Water . . . . .	500 gr.
Neutral Sulphate of Soda . . . . .	100 "
Pyrogallic acid . . . . .	14 "
2.—Water . . . . .	1000 gr.
Crystall. Carbonate of Soda . . . . .	50 "

Take for development a 13 x 18 plate, 20 c. m. of No. 1, and 40 c. m. of No. 2.

The developer can be used several times—  
DR. H. W. VOGEL in the *Wochenblatt*.

## ASTROMONY AND PHOTOGRAPHY.

CAN we wonder if astronomers should already boldly entertain the thought of making a complete survey of the heavens by means of photography? Admiral Mouchez has shown that in the course of ten years fully 15,000,000 of stars might be made to record their exact position and true relative brightness in a series of large photographic charts! Nothing done by man since astronomy was a science can be compared with such a work as this, which yet might be well accomplished in a decade of years. But even all this, wonderful as it is, seems less impressive than what has been done, and what astronomers are even now planning to do, in applying the photographic eye of science to analyzing the structure of remote suns. Already they have made the waves of light from many of the leading stars record their story on the tiny shore of photographic film, after journeying millions of millions of miles through space. But now a complete survey is to be made in this way. A giant eye so constructed that not only will it gather, but it will sift the light from multitudes of stars at once, will be directed in succession toward different parts

of the heavens. For an hour at each view will this monstrous eye, more wonderful by far than the ichthyosaurian eye with which we began, gaze analyzingly on many hundreds of stars at once, leaving on record at the close of its survey the photographic spectra of all those stars, by which the elements present in them, nay the very condition in which these elements exist, will be written down in letters and words which (for the astronomer) there is no mistaking. Truly a wonderful era of astronomical research is now beginning. Probably the next half century will reveal more about the millions of millions of tenants of interstellar space than all the years which have elapsed since Hipparchus, noticing a new star, was led to form the first of all known star catalogues.—*Cornhill Magazine*.

### QUESTIONS TO THE CRAFT.

#### QUESTIONS.

1. Are you making large portraits direct in the camera, *i. e.*, using a larger lens than 14 x 17, with large dry plates? If so, what is your method of lighting and manipulation, and your experience as to the quality of your results compared with enlargements from small negatives?
2. Do you obtain as satisfactory results, in portraiture, with very rapid plates, as you do with slower ones?
3. What is your most successful method of development of rapidly exposed plates?
4. Have you found an increase of business and profit with the increased facilities for making large work more expeditiously, adopted by you?
5. What has been your experience, both in practical results and in the acceptance by the public, of bromide enlargements?
6. What with platinotype prints?
7. Do they increase the revenue from your stock of negatives?
8. Please detail some of your experiences in making pictures of children.
9. In printing dry-plate negatives wherein does your treatment of them vary from your practice with wet plates?
10. What variations do you make in your manipulations in cold weather from your practice in the mild season?

11. What are the prospects for the coming year?

#### ANSWERS.

IN response to the request to answer the eleven questions, I will try to do, to the best of my knowledge.

1. I do not make anything larger than a 10 x 12 negative, and these are mostly family groups, some with very small babies in them, and I do not have any different mode of working them from what I do smaller ones, and have as good results, too.

2. No, I do not have as good results with a rapid plate as I do with a slow one. The lightning plates I have to give twice as long a time as I would with extra rapids to get the same result. The cause I cannot solve, so I use the Seed plates.

3. As I do not use them, I cannot give any.

4. I do not exactly think I can say that the profit has been so great, for I have done my bromides like Hartley made his, for \$10, with frames, and have worked up quite a trade in that line; and now as I have got them introduced, I am going to raise on the price and give a better frame.

5. They have been the most favorable, both to myself and the public at large, who have pronounced them very fine. Of course, it is owing to the negative you have to produce them from.

6. I have not had any experience with them at all.

7. Can be answered in the same way as above.

8. I do not have as much trouble in making pictures of children as a great many, for I am a lover of small children myself, and take a delight in working and fooling with them, and when a customer comes in, especially when they have a small child with them, I commence playing with it, and get it so it is not afraid of me, or rather used to the room and things, and by the time they are ready to go, I have a fine negative of the child and the best of an opinion of the mother. "Why," she says, "you have not got it already, have you?" A great many times I have them smiling, or in some other cute position. I have more trouble with larger ones than small

children; and another thing, I very seldom use a head-rest for any child. I have taken a child from eight to ten months old standing up without any sign of a head-rest, and I have made pictures of dogs with the same success and with the same plates (20 Seed's).

9. I do not have any different treatment for dry plates from wet ones, only some of them print slower, for I have worked both together, as my old negatives are wet plates mostly, and my duplicate orders are mostly from them. I think it pays to keep old negatives, for mine pay rent and insurance on my room.

10. I do not know that I have any different mode in manipulation in cold weather than in warm, at least I have not noticed any to speak of.

11. To hear the community at large in reference to the present year, they say that the prospects are very favorable for a good year, which I am anxious to see.

Respectfully, W. F. CORE.

LINCOLN, ILL.

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### IMPROVED ARRANGEMENT OF THE OBJECTIVE FOR THE INTRODUCTION OF THE SCREEN WITH THE YELLOW DISC.

IN a former article I mentioned that, instead of using the bar for unclosing the blind slits, a second tube, surrounding the principal one, can be used. For this purpose, another objective mounting may be substituted, a 27-line Steinheil Aplanat.

The ring surrounding the objective tube should be divided into three parts, the middle part to turn around the objective tube, while both the other parts are screwed on and only serve to prevent the middle part from moving aside. In this last ring an opening is cut which corresponds to the (enlarged) screen slit; moreover it forms a better knob for handling.

When the screen is inserted, the middle ring is turned around until the screen slit is shut.

In order to accomplish the opening and shutting of the screen-slit with greater promptness, a pin should be fastened to the middle ring reaching to one end ring. Fasten to this two pegs which will project

toward the middle ring, so that this ring may be brought by the one peg into that position where the blind slit is exposed, and by the second peg into the position where the slit is covered.

This construction is more practicable than former ones where the bar falls easily, for in this new construction that is not to be feared.

As I said in the former article, thin metal plates must be fastened to the screens under the grooves so that the yellow collodion shall not be scratched. Steel pens can be used for this purpose and they should be bent a little; these exercise a light pressure upon the yellow discs and prevent them from running too freely in the grooves, which they might do by frequent use.

The celebrated maker of microscopes, Mr. C. Reichert, made for me objectives after this construction. In fact, the improvement which I have described is his idea. It would be to the interest of the trade to press the makers of photographic objectives to adopt this idea, and it may not be superfluous to mention that the use of my invention is not limited by any patent.—*Correspondenz.*

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### NEW EXPERIMENTS IN THE ASPHALT PROCESS.

THIS process itself is well-known, but Prof. Husnik gives many new details. The pulverized Syrian asphalt should be dissolved in double the quantity of German turpentine oil, stirred every half hour, until after two days it is as thick as syrup. Other kinds of turpentine, such as the French, the Austrian, the rectified, and the common kind are unserviceable because a small quantity of them will not dissolve the asphalt easily. By experimenting, it can be ascertained how much sulphuric ether is required to extract the sensitive part of the asphalt. To a certain portion of the solution plenty of ether should be added, stirred up, and then left covered to settle; then pour away the fluid from the sediment, and examine whether after a further addition of ether a sediment still forms in from two to three minutes. So long as this happens it is necessary to add new ether—often to four

or five times the quantity of the asphalt solution. This etherized solution, containing asphalt, can be kept, and the ether can be regained through distillation, whereby a serviceable, thick asphalt solution remains on the sides and back, and the dough-like precipitated asphalt can be washed out again with ether, and then spread out upon a zinc plate to dry, the little pieces thereby being often dissolved. From two to four days are necessary for drying. All this work should be done in daylight, removed from fire or flame, and the vessels kept covered as far as possible. The solution of the brittle, easily powdered, light-sensitive asphalt, can be obtained either with chloroform or with the cheaper and more convenient benzine (free from water). For if the latter be not entirely free from water, then the solution does not flow uniformly over the plate, but gathers in drops. If this error is not too apparent, it can be remedied by the addition of chloroform. But it is far better to distil the benzol by shaking it with burnt pulverized copper sulphate, which can be poured off after a two-day's settling. This way of dissolving dries so quickly that in from three to four minutes an asphalt layer is dry. For the purpose of dissolving, the benzine, mixed with one per cent. of Venetian turpentine, is poured upon the pulverized, light-sensitive asphalt, then shaken often until this is dissolved. Then it is diluted until a layer spread upon the zinc appears of yellowish-gold color. Then this well-settled solution is poured into a warm, dry bottle which has first been washed with water, then with spirit, and finally with ether, and well corked. In using it, it should be poured upon zinc or copper plates evenly polished, dusted with the brush, and laid horizontally upon a turning table in order to obtain a layer of uniform thickness by the rotation. The copying of the zinc plates spread over with a thin sheet lasts, in the sun between five and thirty minutes, in the shade from three-quarters to three hours. The polished zinc plates must, unfortunately, be very thick for etching, and require, therefore, very even negatives and very strong print in the copying frame. It should be tried whether thin zinc plates, polished, could

not be used by soldering upon the type metal, and which could be put on, in the copying, like paper. They could, after the development, be lightly etched, soldered, and then first rolled in and the etching finished. The most important point, where a failure is possible, is the development. The whole secret lies in this—the process must be undertaken only according to the above directions, with the waterless German turpentine, the effectiveness of which should first be tested on an unexposed asphalt layer. Unfortunately, it sometimes happens with some kinds of German turpentine that they will not work. In this case, they should simply be thrown away and others chosen. The development should take place in a dish by merely washing; brush and cloth spoil any picture. The white ground should appear in one to three minutes; then the plate should be taken out, more turpentine poured over it, and washed under a water spout. Let it drip and dry, dip it three seconds in a weak acid bath, 1-20, varnish, and blacken. Then the picture can be re-touched and etched as usual.—*Wochenblatt.*

#### PERTAINING TO THE



MEDALS AND AWARDS.

I see by the last journal, the convention officers have decided on medals for the Chicago Convention. I see they have offered some for the best twenty-five cabinets, but do not say whether the pictures shall be of one subject or of twenty-five subjects. In small places it will be a hard matter to find so many subjects who would be willing to sit for such a purpose, consequently it will give photographers in larger cities a decided advantage on the choice of subjects.

I would suggest that the subjects be limited to three or five, say five, with five positions of each; this will give as good a chance for all as I can see.

Would it not be wise of the committee to offer one or two hundred dollars for the greatest novelty in pictures? This, I think, would set some of the old fogies' brains to work, and might possibly bring out something that would give photography a boom in the future. As things are, with low prices and cheap Johns, we need something that would get better prices for our work. I think it would be a good act for the stock-dealers and the better class of photographers to join hands, and sell nothing to the trash who are ruining the business with cheap prices.

Yours, truly,  
STODDART.

#### CHEAP JOHNISM.

The question of "Cheap Johnism" has been so many times discussed in photographic conventions, innumerable articles have been written in all the photographic gazettes circulating all around the world, upon the same evil of our art, and just as many remedies for it were brought forward, but none efficacious enough to my mind to be practicable in execution. In my opinion, the only help against that disease lies entirely in the hands of our annual conventions, and is very easy to be carried out.

As soon as the great public in general will be able to judge the progress in photography, and get acquainted, with the degree of perfection our art-science has arrived at, it will, from itself, turn the back to its "cheap Johns," and patronize the good photographer even at a higher rate.

The problem to be resolved is, then, to educate the great "publicum" in that way, and that can be done only—seems to me—by *free admission* of the public to our annual convention's exhibition. I would go further, the conventions should not spare any money in giving large publicity of such free admission to their exhibitions, in order to attract the masses.

The little loss of the "paying entrances" would be greatly paid back to the whole fraternity, by increase of patronage of a "judging public," and would do a great

deal more against cheap Johnism than any other futile remedy brought forward in any other direction.

Should you find this idea good enough to be pushed in the mind of our association, you are the very man who knows the best way for doing so.

We might begin with this year.

Yours, very truly,  
J. HEGYESSY.

By the way, have you noticed that in the list of awards to be distributed at the next convention, that Mr. Barker and myself, as recipients of gold medals for landscape work last year, are not eligible to any one of the prizes this year—not even a leather medal—as *all* gold medalists are confined to Class A, and competition in that class is restricted to portrait work only. Any and every photographer in the United States can go in for something, but we two are completely disfranchised.

Yours, truly,  
W. H. JACKSON.

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### BROMIDE OF SILVER GELATINE EMULSION PROCESS.\*

BY WALTER E. WOODBURY.

Of the different methods of preparing the sensitive emulsion for plates, that with "silveroxyd-ammoniak," Eder's process, will be here described, so that we do not confuse the reader with a multitude of differing formulæ. If the directions given are conscientiously carried out, this method will be found easy to work and needs but little apparatus. This gives plates of a moderate degree of sensitiveness.

#### MIXING THE EMULSION.

The emulsion is mixed by adding to a solution of gelatine in warm water which contains only bromide, a watery solution of nitrate of silver. After each addition of the nitrate of silver solution the mixture must be violently shaken, by which a finer distribution of the forming bromide of silver is arrived at.

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\* Translated for the PHILADELPHIA PHOTOGRAPHER from Pizzighelli's *Handbuch der Photographie*, Band I, 1886.

This operation is carried out in the simplest way by taking a good sized bottle for the bromized gelatine, and by dropping in the silver solution, by degrees, out of a little flask or bottle. Similar results are, however, attained, if the silver solution can be introduced in a thin stream. For this purpose, as well as for the convenient shaking of the emulsion, several forms of apparatus now exist, of which some are here described. For small quantities of silver solution a sprinkling-flask is used. By the breath of the operator the silver solution is injected by degrees in a thin stream into the vessel holding the bromized gelatine. By another method the gelatine is in a strong, thick-walled glass or porcelain vessel; the silver solution is allowed to flow slowly out of a glass tap, and the emulsion, as it forms, is violently stirred with a wooden ladle. A very handy mixing apparatus has been constructed by Braun, of Berlin. To a hard India-rubber spindle are attached wheels with lades, which can be set in rapid rotation by means of a simple rack and pinion apparatus. The whole arrangement is placed in a porcelain vessel containing the bromide and gelatine. The silver solution is allowed to flow through a glass funnel with a tap.

SILVER-OXIDE-AMMONIA METHOD.\*

Three solutions are required in the preparation of the emulsion according to this formula.

No. 1.

Hard Gelatine . . .	30 grammes.
Distilled Water . . .	250 centimetres.
Bromide of Ammonium	20 grammes.
Iodide of Potassium	
Solution (1:10) . . .	3 centimetres.

The gelatine and water are placed in a flask or bottle with a glass or other efficient stopper; the gelatine must soak from half an hour to an hour, and the bottle for the dissolving of the gelatine be placed in a tin saucepan with water, which is to be gradually heated till the gelatine is dissolved. By dipping a glass thermometer into the solution, it can be determined when the temperature rises to between 35° and 40°

C.; so long as it continues between these the heating must continue; if it rises above, the tin pot must be removed from the fire. Then the bromide of ammonium and iodide must be added to the gelatine solution, and the flask shaken until the former salts dissolve and are well amalgamated with the fluid. A folded linen cloth must be laid under the bottle when placed in the tin vessel, so that the bottom of the bottle may not come into direct contact with the pot, as the water is heated, and so perhaps break. It is also well to place in the tin vessel a sort of false bottom pierced with holes like a strainer, for the flask or bottle to rest upon.

The second solution consists of:

No. 2.

Nitrate of Silver . . .	30 grains.
Distilled Water . . .	250 centimetres.

Ammonia is added till the brown cloudiness which at first arises, again disappears. The operator must be very careful not to add too large a quantity of the ammonia, especially toward the end of the operation, when the solution begins to clear. At that stage the ammonia must be added, only drop by drop, and the solution violently shaken at the same time.\*

Lastly solution No. 3.

No. 3.

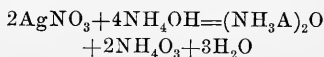
Hard Gelatine . . .	10 to 15 grains.
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Water as much as will just cover the gelatine is allowed to soak from one to two hours in a porcelain vessel; shortly before use, the water is poured out and the vessel is placed in warm water so as to dissolve the gelatine.

All the foregoing processes can be done by daylight.

The tin saucepan with the gelatine solution and the silver bottle (if necessary, the sprinkling-flask or the emulsion apparatus) is taken into the darkroom, and the mixing

\* In forming this according to Prescott, the following occurs:



\* Eder's Handbuch der Photographie.

of the emulsion is carried out after the method already described.\*

The bottle with the prepared emulsion is put back into the tin-saucepan, which is enveloped in cloths, so that the water, at a temperature of 35° to 40° C., may not be too suddenly cool, and the emulsion is left for about thirty minutes to digest.

During this time it must be shaken several times, and the operator must satisfy himself, after twenty minutes, that the maturing process is going on. This is done by dropping a little of the emulsion on a glass plate, going into the daylight and observing how the color appears. The color, which is red after mixing, should turn gradually violet-blue to bluish-gray. When the last-named tint is obtained, the cooking process may be considered as complete.

Before, however, the emulsion is left, it is advisable to determine by careful examination whether or not there is a superfluity of silver, which, as already intimated, would quite destroy the emulsion. With exact attention to the proportionate weights of silver and bromide given above, no such superfluity should be possible, but an error in weighing is always possible, and great care must be observed.

In examining the emulsion, a drop of the same is carried into the light on a glass plate, together with a drop of neutral chromate of potassium solution. The two drops are mixed by means of a glass rod, when no red color (caused by the formation of bichromate of silver) should be visible in the mixture. Any alteration in the color is best observed by laying the glass plate on a sheet of paper.

When a red color appears it indicates a superfluity of silver in the emulsion, which must be eliminated without delay by the

addition, drop by drop, of an aqueous solution of bromide of ammonium (1 to 10), until the test, made from time to time, shows no further evidence of silver reaction.

During the cooking process the soaked gelatine has been left to dissolve; after completion of that process the gelatine solution No. 3 must be poured into the emulsion, well shaken, and the mixture placed into a flat porcelain dish 3-6 cm. high to set.

Setting should not require more than six hours; in summer, therefore, the dish should be stood in cold water or ice. When the emulsion is set to a firm jelly it must be broken up into small pieces and washed in the method to be hereafter described, and is then ready for coating the plates. This emulsion gives plates of medium sensitiveness, and is easy and certain on working.

#### WASHING THE EMULSION.

The simplest method of washing is to place the gelatine emulsion in a muslin bag, and to hang the same, in a large vessel of water, upon a stick laid obliquely across. If the water be often changed, and the gelatine emulsion well shaken up, two or three hours are necessary. For certainty's sake, however, it is customary to wash for six and even more hours. If the operator possesses a glass or porcelain vessel with a projecting rim and an outlet at the bottom, he may contrive a washing arrangement. By that the removal of the water that has been used is much easier. By Schumann's plan a pear-shaped glass bell is closed by strong gauze or thin muslin at its narrow opening, and after the addition of the emulsion, is suspended in a good-sized vessel. In changing the water, it is only necessary to lift the glass bell, continually stirring at the same time, so that the water runs out through the gauze bottom. Then the vessel is emptied, and refilled with fresh water. The operation is repeated about every half hour, and in all about ten or twelve times. For those who find it inconvenient to carry on the washing in the dimly red-lighted room, the apparatus of David von Skolik may perhaps be found more suitable.

A cylindrical tin vessel, rendered im-

\* In the mixing is first formed iodide of silver and then bromide of silver. If iodide of potassium solution be added to the already formed bromide of silver, a corresponding part of the bromide of silver will pass over into iodide of silver. Should the operator have forgotten in developing the emulsion to add the iodide of potassium as above directed, the omission may yet be rectified later, but, of course, before the washing.



penetrable to light by closing a cover by means of the so-called English lock. The bottom of the vessel slopes abruptly from the centre toward one side, and passes into a pipe, in leading upward is a sort of stand fixed above the bottom, serving as a support for the glass bell. For washing, by daylight, the glass bell containing the emulsion, broken up into small prisms, is inserted into the vessel, and then covered underneath with fine gauze, doubled, which is kept in place by an India-rubber band. In the neck of the bell is a perforated India-rubber stopper, from the under end of which a glass tube leads into the bell. Into the upper part of the stopper must fit exactly the end of a brass tube, which forms the continuation of a spiral tube, which is led through the cover. This last must be connected with a water-supply tap, with a large cistern. In using this apparatus it is recommended, first, to push the India-rubber stopper on the brass tube so far that, when the cover is fixed on, the stopper must fit firmly into the neck of the glass bell. The bell with the emulsion remains, in consequence of the application of the pipe (or tube) always up to its neck in water, which finds an outlet through the waste-pipe. A brass tap fastened on at the lowest extremity of the bottom is placed there for the purpose of completely removing from time to time such salts as may be washed out, and fallen to the bottom, but have not been drained out. A little pipe is on the cover, which sucks on air, thereby preventing any interruption to the draining off of the water. With constantly flowing water, every emulsion can be washed out in at most two hours.

The author, who has at present no proper water supply at his disposal, employs a similar apparatus. The filling is done by means of a funnel placed in the spiral tube. The siphon tube is taken away, and the change of water effected only by means of the tap.

This apparatus just referred to can also be applied to the working of the emulsion by daylight. For this purpose the emulsion flask is placed on the stand in the dark-room, firmly fixed by sliding irons, and stopped by an India-rubber stopper. By means of a lid the tin vessel is closed so as

to be quite light-tight, to enable the operator to carry it into the daylight, and as required to shake it well. After the completion of the washing, the gelatine emulsion is put by means of a horn spoon on a piece of clean, strong, linen cloth, previously spread out over a sieve or glass funnel. The ends of the linen cloth are brought together so that a bag is formed, and the water contained is wrung out by the hands until with the strongest efforts no single drop exudes. The bag is then hung up for from three to six hours, so that any water which may possibly remain can drain out. The presence of too much water causes the emulsion to become thin in dissolving. The emulsion is then ready for the preparation of plates, and can be used forthwith, or preserved for future use.

It will not be necessary to undertake any test of the emulsion to ascertain if it be sufficiently washed, provided the directions here given have been carefully and conscientiously followed out.

If, however, the operator wishes to make assurance doubly sure, he may essay the following simple test of Dr. Eder.

A solution of exactly 2 grammes of nitrate of silver in 100 c. cm. water is required. Weigh out 25 grms. of the emulsion to be tested in a fluid condition, diluted with from 2 to 5 times its volume of distilled water, and, after cooling, mixed with yellow chromate of potash till a desirable yellow coloring is attained. Then add, while stirring, 10 c. cm. of the above-mentioned silver solution, which changes the color from a distinct reddish-yellow to deep red, if the emulsion is sufficiently washed out for all reasonable requirements.\*

A very well-washed emulsion colors red with 5 c. cm. silver solution, and then contains less than 0.05 to 0.06 per cent. of soluble bromide. If as much as 20 c. cm. of the solution produces no red coloring, or in general no alteration of color, then it is a case of decidedly imperfect washing.

\* 10 c. cm. silver solution correspond to 0.023 grms. bromide of potassium, or 0.023 bromide of ammonia. Under the above conditions, therefore, an alloy of soluble bromide is indicated amounting to 0.1 per cent.

## PRESERVATION OF THE EMULSION.

The gelatine emulsion cannot be long preserved as a jelly without undergoing changes, which occasion in working many ill effects, among which may be prominently named its peeling off from the plates which it has coated. The emulsion once made, it should be the endeavor to work it up as soon as possible. Should this from any cause be delayed, some antidote to putrefaction must be added; as, for example, to every 100 c. cm. emulsion 5 c. cm. of an alcoholic carboic acid solution, 1 to 20, which must be well mixed with the fluid emulsion before it sets.

This prudential measure, however, does not long retain its virtue; and can, therefore only be employed when it is only necessary to preserve the emulsion for a few days.

For longer periods, Obernetter's preservation method is the most suitable, according to which the gelatine emulsion is preserved immersed in common alcohol (40°). The alcohol draws by degrees continually more and more water from the gelatine, leaving it at last just like leather. In that condition it will keep for months. When this is used it should be first thoroughly well soaked in water, and then washed in water which must be changed several times in order to remove all alcohol from the emulsion. A very small quantity of alcohol in the emulsion is not harmful in preparing the plates, but too much is decidedly injurious, causing faulty, spotted plates. Or, instead of in alcohol the emulsion may be preserved dry. By this method the emulsion, broken into small pieces, is put into a dish or basin and alcohol is poured over it; the alcohol must after each hour be changed—two or three times in all, and the gelatine prisms be then suspended in a muslin bag for about two hours to drain. After the alcohol is perfectly drained out the emulsion is spread out on clean filtering paper or upon a frame over which a cover of silk gauze is stretched, and allowed to dry in the open air.

Before using, the dried emulsion must be allowed to soak for at least twenty-four hours in, say, 10 grammes of dry emulsion to 100 cubic centimetres of water, then

placed in the water-bath heated to 50° to 60° C., and frequently shaken. In half an hour it will be completely dissolved and may be used in preparing the plates.

The dry emulsion is preserved and protected from the air and light best in black glass jars with ground-glass stoppers, or in white glass rendered light-tight by paste-board or tin covers.

## MIXING EMULSIONS OF DIFFERENT SENSITIVENESS.

Emulsions cooked for a short time give, in general, plates of great density but little sensitiveness; long cooked emulsions give, on the contrary, thin plates of greater sensitiveness. If both kinds be tested with Warnecke's sensitometer, it will usually be found that with the quickly cooked insensitive emulsions the degrees 1 to 8 or 10 are graduated very strong and quickly sinking, while with the slowly cooked and very sensitive emulsions the degrees 1 to 10 are graduated too weak or thin and too slowly sinking, while those from 10 to 20 appear very well graduated.

If the two different kinds are mixed there is obtained from number 1 to 20 a constant and well graduated scale. The faults of both emulsions seem to be removed.

The proportions for mixing vary according to the character of the emulsion and that must be experimentally ascertained. Mixing may be effected with the view of obtaining plates of constantly equal properties. Therefore, several emulsions of different degrees of sensitiveness must be prepared, at the same time test plates must be made with these and exposed and developed. The character of the pictures will then afford a key to the proportions in which the mixing must be effected in order to attain a particular result. This somewhat troublesome work is to the plate manufacturer, who must always produce a regular article, of considerable importance; of course, less to the amateur. The latter need only undertake the mixing of emulsions when he wishes to improve an emulsion which works too slowly. An addition, as, for example, one-twentieth to one-tenth, in case of need, one-fourth of overcooked

emulsion will not sensibly alter the sensitiveness of the first, but will lend it more strength and thickness.

From an experiment instituted by David & Skolik they found as follows: A Henderson emulsion was allowed to remain for twenty-four hours at a temperature of 25° C. The sensitiveness was considerable, being 22 to 23 degrees Warnerke, yet the plates showed little strength. For the production of stronger negatives the fourth part of a less sensitive emulsion was added. By this addition the sensitiveness was not altered but the density was considerably increased, while with the Henderson emulsion in question, in coating, considerably more emulsion than usual was necessary to obtain opaque plates. With the mixture half the quantity gave thick plates and strong negatives.

(To be continued.)

### DIRECTIONS FOR USING FLANDREAU'S S. P. C. ORTHOCHROMATIC SOLUTIONS.

As these and kindred articles are coming into use we publish the added formulæ:

#### *Preliminary Bath.*

Aqua Ammonia . . . . .	1 drachm.
Water . . . . .	7 ounces.

#### *Color Bath.*

No. 1 (Erythrosine) . . . . .	1½ drachms.
Aqua Ammonia . . . . .	2 "
Water (distilled) . . . . .	5½ ounces.

Immerse a plate of medium sensitiveness (Carbutt B) in the preliminary bath and allow it to remain for three minutes. After removal drain well, and without washing, plunge the plate in the coloring bath, rocking it gently to secure uniform contact with the solution. The plate should not remain in the color bath longer than seventy-five seconds, as a long-continued exposure to the color solution will depress the general sensitiveness, without increasing that for colors. If a large number of plates are prepared with the same solution it is advisable to add after the eighth or tenth plate, about ten or twenty drops of Erythrosine. The colored plates must be well drained, reared upon blotting-paper and dried in the ordinary drying closet.

Colored plates may be exposed while still wet, and the general sensitiveness is somewhat increased thereby. If, however, the object to be photographed requires a very long exposure it is better to use a dry plate. These plates may be developed with any energetic developer, the S. P. C. pyro and potash developer being preferable.

Being extremely sensitive to red, orange, and yellow, all possible precaution must be taken when preparing, handling, and developing these plates. The operations must be carried on in the shade of a dark ruby lamp, or a light subdued by several thicknesses of dark brown tissue paper.

With the interposition of the yellow screen (absolutely necessary for the copying of objects in which blue and violet predominate), the time of exposure may be increased from three to six times that of an ordinary plate.

For portraiture a more sensitive plate (Carbutt special) may be employed, but the amount of ammonia in both baths must be reduced fifty per cent. Unless there is an abundance of blue or violet drapery, the yellow screen may be dispensed with in making portraits.

The properties of erythrosine permit the photographing by artificial lights which are rich in yellow or red rays, like the incandescent electric, gas, or petroleum. The time of exposure is then, all other conditions being the same, but a little longer than with ordinary plates in daylight. Fixing, washing, and intensifying are done in the ordinary manner.

Erythrosine being decomposed by light, its solution must be kept in the dark.

To depress the violent action of violet and blue when predominant, it is indispensable to interpose yellow screens between objective and sensitive plate. To prepare them a thin, white, plane, parallel glass is coated with the Xanthine collodion and dried. For convenience it had best be surrounded by a slight frame, and then suspended immediately behind the posterior lens of the objective, in the bellows.

The yellow color of the preparation fades by long exposure to light; screens must, therefore, be kept in the dark, or the coating be frequently renewed.

## HEAT-PHOTOGRAPHY.\*

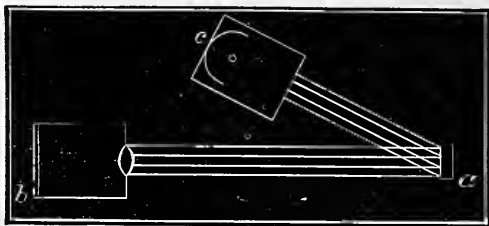
BY F. E. IVES.

At the November meeting of this Institute, I described certain experiments in photographing by the aid of the phosphorescent tablet, and announced the discovery of a means of photographing obscure objects by the action of heat-radiations. Since then I have made several camera-photographs of metallic objects by the action of obscure heat-rays, which I placed the objects in a position to reflect. With a source of heat, produced with the consumption of coal-gas, at the rate of only three feet per hour, I obtained strong heat-photographs of small metallic objects, with camera-exposures of only ten seconds. But, although a moderate amount of heat was sufficient to give such striking results, it proved to be necessary, under ordinary conditions, to employ heat of a certain quality or intensity, which can be obtained only when the source of heat is also a source of light. My source of heat was the incandescent lime of the oxyhydrogen light, placed in a dark box, one side of which was of black glass; the black glass transmits about thirty per cent. of the intense heat-rays, but no rays capable of producing phosphorescence, or of affecting bromide of silver. The arrangement is shown in this diagram: *a* is the metallic object; *b* the camera; *c* the dark box containing the source of heat.

The object was focussed by the light-rays, allowance being made for difference of refrangibility of the heat-rays; the light was then extinguished by the black glass, and a solarized phosphorescent-tablet exposed in the camera. As I explained in my preliminary communication, this exposure produces a dark impression instead of the luminous impression that would be produced by violet light, and the photograph of this impression, made by contact-printing on a photographic

sensitive plate, is, therefore, a positive, instead of a negative.

I attempted to substitute a hot iron for the incandescent lime, as a source of heat, and even to photograph the hot iron itself, but without success. This might seem to indicate that the tablet is not sufficiently sensitive to the feebler heat-rays radiated by objects not heated to incandescence; but a simple experiment demonstrates that such is not the case. Contact with the hand for a single second will produce the characteristic sudden exaltation and partial exhaustion of phosphorescence in a tablet that has been kept at a sufficiently low temperature after solarization, and a simple calculation will show that enough heat is radiated from the hot iron to produce, in a little while, a strong impression in a camera some feet away. The knowledge of this, and of the fact that rock-salt lenses transmit, and metallic mirrors reflect, these feebler heat-rays, led me to hope that I might photograph obscure objects without having to secure the special conditions that now appear to be necessary. My failure with the hot iron proved to be due to absorption of the heat-rays by aqueous vapor in the air. Prof. Tyndal found by experiment that the aqueous vapor in the air of his laboratory absorbed seventy times as much heat as the air itself. My experiments



were conducted in very damp weather, and nearly all of the heat radiated by the hot iron was evidently exhausted in warming the air, and was carried away in air-currents. Although I did not accomplish what I hoped to in this direction, these experiments have made it evident that in a perfectly dry atmosphere, it would be possible to obtain photographs of obscure objects by the action of heat-rays of low intensity.

I have two illustrations of the method:

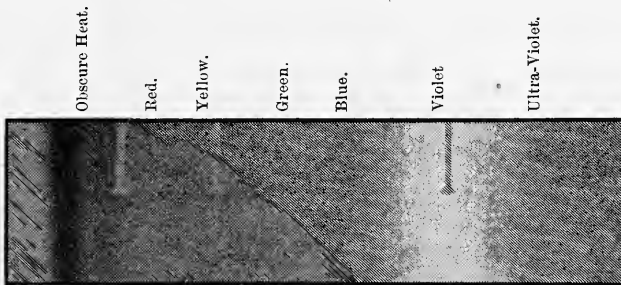
\* Read at the stated meeting of the Franklin Institute, Feb. 16, 1887. This term may be objected to, but has been employed because the result of the method described is a fixed photograph of a fugitive thermographic impression.

one is a heat-photograph of a German-silver key-check, the other, a photograph of the impression produced on the solarized phosphorescent tablet by the lime-light spectrum. The key-check photograph is quite small but reasonably distinct. I believe it is the first heat-photograph of an object that has ever been exhibited. The shadows of three pins are reproduced in the spectrum photograph; one was in the violet of the spectrum, another in the yellow, and the third at the lower limit of the visible spectrum. This photograph proves what I have already asserted—that in Balmain's paint, phosphorescence is produced chiefly by the violet rays, and the dark heat-rays below the visible spectrum act most powerfully to exhaust that phosphorescence. Exposures on the

transmit the feeble heat-rays to any considerable distance. If Zenger obtained a photograph of a midnight landscape in exactly the manner he described, it must have been by the action of light-rays that would have produced a much stronger and better photograph by acting directly upon the photographic sensitive plate itself.

One other statement of M. Zenger's calls for correction by me.

He asserts that collodion bromide emulsion plates stained with chlorophyl are sensitive to all parts of the solar spectrum "from ultra-violet to ultra-red." More than seven years ago I discovered and published the fact that such plates are so remarkably sensitive to all colors as to be capable, with the aid of a weak yellow light-filter of producing cor-



Lime-Light Spectrum on Solarized Phosphorescent Tablet.

solar spectrum gave substantially the same result, but showed relatively more action by luminous heat, and distinct but very feeble action in a portion of the ultra-violet spectrum—the latter action was utterly insignificant as compared with the action of the same rays on bromide of silver.

In my preliminary communication, I stated my belief that certain results that one M. Charles Zenger recently claimed to have obtained by the aid of Balmain's phosphorescent paint could not have been obtained in the manner that he described. My later experiments confirm this belief, and I would not again refer to Zenger's communication had it not been widely published, attracting much attention. Balmain's paint is but feebly sensitive to invisible chemical rays, glass lenses are practically opaque to all heat-rays radiated by bodies not heated above 200° F., and even a moist atmosphere will not

rect color-tone photographs of all colored objects; but it is not true that the sensitiveness extends to the ultra-red rays; it stops abruptly at the Fraunhofer line *a* in the red, as shown by spectrum photographs that have been made on such plates.

### OUR PICTURE.

THE approach of spring leads the outdoor photographer now to dust off his camera, adjust his objectives, and put a fresh gum band in his drop-shutter preparatory to an early outing.

We cannot be accused of forcing the season, therefore, if we, even now, use as our embellishment a landscape.

It is one of those bits which so abound amid the wilds of dear old New Hampshire, where the robins sing to the quiet, and

where none of the world's confusion comes to disturb or to make afraid.

It is named "The Old King," after the mountain profile which faces the valley in the distance, another of the peculiar points of interest found in the old Granite State. And it is not badly named, for it requires but little imagination to make out the stolid outlines of the royal profile, with the head leaning back against the mother mountain for a pillow, the intellectual forehead protruding beyond the nose, all turned toward the heavens like an astro-photographer. The green cast of countenance which it wears in the springtime, though flooded by the generous light, makes it a good subject for orthochromatic photography; but it was not taken in that way. For such a height only "Eagle" plates could be used. Personally we know the spot well, and have often planted our camera on all sides and all around the base of "The Old King."

A few years ago we presented our readers with a view of some of the rugged mica-slate rock spires which loom up from the mountain inclines close to the feet of this giant. When our negatives were made, a little brown-eyed maiden was our companion. Since then the added cares of her father have compelled her to spend her annual holidays there without him. The camera then became her companion, and one of her results is before us—the work of the second and feminine generation.

Our readers must be her critics.

Aside from the novelty imparted to this particular locality by the "Old King," Dixville Notch is one of the most lovely spots on the face of the earth. It is west of Portland, and north of the regular "White Mountain" region, close to the Canada line. Its peculiar geological construction makes this part of the Notch subject to quick changes. There is a place not far away where a snowball fight may be indulged in during every month of the year. There are gardens of flowers, splendid climbs, tumbling cascades, trout streams, and wildernesses sublime, near at hand; and in one day it is possible to be regaled by

"April showers,"

"May flowers."

And—snow?

Blow?

Yes, all these, and as many more fickle changes as a great mountain notch is capable of cajoling.

Toward sunset we have seen the summer storms drive through to the west, ending in a display of glory that would defy the deftest painter, and cause him to sing a song of delight. But the next morning, with a north wind blowing, and leaden skies above, he changed his ditty.

"No," growled he, "I will *not* look how it is snowing!

Pull down the blind if you've a spark of pity.

Stir up the fire, and make it kindle faster;  
And will you mix me that red-pepper plaster?"

As Margaret Vandegrift sings it in the *March Century*.

Yet, withal, we know of no mountain hiding place so delightful as Dixville Notch, where the "Old King" oversees all.

Any photographer will see that Miss Wilson has chosen a difficult subject—a combination of foreground and distance hard to secure, especially as the wind is rarely at rest there. Full justice has been done to her negatives by the Photogravure Company, New York, whose admirable process secures a pictorial effect which no other seems capable of producing. As the season is at hand, too, when landscape photographers at resorts are searching for a method of quick and plentiful production for souvenirs, photogravure should not be overlooked.

## PHOTOGRAPHIC PORTRAITURE.\*

BY WILLIAM CROOKE.

As the painter must ever be beholden to his brush and other mechanical aids to the expression of his genius, so must the photographer make intelligent use of his appliances in order to the production of his best efforts. As portraits may be painted or produced by other means than those usually employed, so many photographic portraits be produced without a studio, but to the professional man the studio is as necessary

\* Abstract of a paper read before the Edinburgh Photographic Society.

in the one case as the other. Amid all changes certain requirements remain, and the studio is one of these. Let me say a word about it. All manner of construction and situation is to be found, and probably advocates for every variety we can think of; but while many are compelled to do with less than they could wish, or a different situation than they could desire, a very general inclination will be found in favor of a north light. My own preference is decidedly toward a north or northeast aspect. My studio is seven feet six inches in height at the side, rising from that at an angle of 45°. This I consider a good serviceable height. It will be found that a high roof lessens the effective control of the light by the operator, without which just so much more difficult and uncertain will it be to obtain the most satisfactory results. The construction of a studio, apart from its relation to the principal light, has not, I think, very much effect one way or other on the work produced in it, unless it is of a most awkward and inconvenient description. It must be a very faulty studio, indeed, in which good work cannot be done, provided there be on the part of the operator the necessary knowledge of the requirements of any particular case, and how to meet them by skilful adjustments, and what I might call artistic tact.

In the matter of lighting the subject, one man's work is apt to partake of a certain uniformity of character, arising from his constantly working under the same, or nearly the same, conditions. A very common error many operators fall into is to set every sitter on the same spot and endeavor to direct the light they judge most suitable on that spot, instead of trying the effect of different points, where they may be placed in relation to the main light, in fact, bringing the "mountain" to Mahomet, instead of Mahomet to the mountain. Where the facilities for doing this are very limited, or where it cannot be done at all, there is no more to be said, and the best must be done with what is available.

Where we have to deal with strong contrasts, such as white hair and high complexion, or white and black draperies, the subject will be most effectively treated by

being made to face the light; where the conditions are reversed, an opposite treatment, according to the particular demands of the case, must be resorted to. The matter can only be referred to in general terms. A skilful operator will determine what to do when the subject comes into his hands, and especially when he sees the sitter in the light which falls just about where he is to be taken.

If good lighting necessitates considerable study and knowledge of effects, posing demands no less; indeed, the art of lighting a subject may be mastered with tolerable completeness, while posing may never be thoroughly acquired, because it is less of a mechanical accomplishment. It calls for a knowledge of harmony of lines, and the effect of balancing of parts—what, in short, is described as composition, and which every one does not naturally possess. An operator may fail in this, just as painters sometimes do, who, though good colorists, are defective as draughtsmen, and in the ability to conceive a good picture. We sometimes feel that photography is too literal to be artistic. From a client's point of view, its tendency is to exaggerate the imperfections rather than the perfections of face and figure. Should you have a stout figure to photograph, the neck, as a rule, will appear short. To obviate this appearance in the portrait, it is best to adopt a standing pose, with the camera a little below the level of the head. If a sitting position is chosen, undue height will be given to the shoulders, and the shortness of the neck will be emphasized. In treating the opposite extreme—a thin figure with sloping shoulders (not so objectionable in the gentle as in the sterner sex), I would recommend a sitting pose, and in the case of a gentleman, especially when the head is large, a little drapery, in the form of an overcoat, loosely thrown back. The head should be turned in the reverse direction from the angle at which the body is placed, which will help to give the appearance of substance and harmony to the figure, and altogether make the picture more pleasing. A little attention of this sort will improve defects in the sitter just as easily as the want of it may produce them where they ought not to

exist. As a rule, twist the figure as little as possible when the person is stout. Some people turn the head more gracefully in one direction than in another; the head seems balanced in the one case, while in the other it may be the line of the neck and shoulder forms too great an angle. Should it be necessary to take that view of the face which gives prominence to this defect, turn the figure away, and the head toward the camera.

Allow me to say a few words as to the treatment of the different features of the face.

When the forehead is broad and high, no particular attention need be paid to the view taken of it; but should it recede too much, and a side or three-quarter view of the face be wanted, let the outline blend with the background. The same treatment should be resorted to where there is an undue fulness of the upper part—of course in children this is common, and is no defect, but when occurring in the adult, is better to be modified.

Very often one brow droops a little, or the eyelid may have the same tendency, in which case I find the best plan to avoid exaggerating this inequality is to turn the figure to that side and the head toward the camera, keeping the droop in the shadow. Variety in noses is endless; make the lens look down at the short, and up at the long, or rather place them in these relations to the lens. If the outline be ungraceful, modify it by more front view. A really good or beautiful nose will be valued by its possessor, and its beauty will be best exhibited by a slight turn of the head; a broad nose is improved by the same treatment and a somewhat sharp light.

The full eye, when light, is difficult to manage, and if all other conditions are suitable, should be turned away from the light; in fact, the greater portion of the face should be shadowed. When the eye, on the contrary, is dark, avoid all reflections which show with marked effect on the eyeball. A sunken eye is generally turned toward the light, but I prefer it turned away, and the light diffused with a medium, such as tissue paper, close to the head.

With reference to the mouth, the chief

want felt in photography is lightness and transparency of shadow, caused by the non-actinic color of the lips, as where they are brightest, and therefore most beautiful, the photograph gives the reverse effect. A good deal can be done on the negative to rectify this.

No man will succeed to any great extent as a portraitist who does not exercise a constant and intelligent observation on all that affects his sitters. Details that to a careless or unobservant mind might seem too insignificant to pay any attention to, may yet be of the greatest importance. The things which go to make a pleasing portrait in any one instance may be in themselves little matters enough—the turn of the head one inch this way or that, the raising or lowering of the eyes ever so little—nothing, in fact, is too small to notice. Let the eye of the operator acquire the habit of taking in his whole sitter. How different is the expression of a lady or gentleman when at their own table, or in the midst of friends on any social occasion. How vastly different from what we see them when about to take the cap off the lens. An active consciousness enters in and deprives the picture of natural grace and beauty, as well as freedom of expression; the hands very often suffer, losing entirely their natural disposition. When you are thoroughly acquainted with your subject you cannot be deceived by this conscious expression, and you can remind your sitters that they are not looking like themselves. Now, how can this be said or done when ten minutes previously you did not know such a face was in existence? This is the only reason I can give for so many random and missing shots in photographic portraiture. Knowledge of the subject I can say is more or less a necessity when the highest results are aimed at; but you may say, how is this knowledge to be obtained? Are photographers to spend a week or fortnight at their clients' houses previous to photographing them? Such is impracticable, and certainly in the case of small-sized photos, photographer and sitters in the majority of instances must be strangers; but my remarks point more to larger photos direct from life. I consider it risky—I don't say impossible, because it depends



on the subject—to take a large direct picture of a person ushered into your presence and out again in the space of twenty minutes. On a first visit a carte might be taken, and on a second visit a cabinet, then the large one when you have gained the necessary acquaintance with your sitter's expression. It is a wonderful art, and because it is so, greater wonders are expected to come out of it. The stream of its rapid advance is not confined to one channel, but it continually overflows and seeks with eager haste to fields and pastures new.

### THE WORLD'S PHOTOGRAPHY FOCUSSED.

MISS ADELAIDE SKEEL, the charming correspondent of the *Photo. Times*, "has been giving a photographic tea to her friends," so says the *Times*. We wonder what solutions she used.

AND now the poor felon must turn his ear to the camera, so a good view of it can be had. Are not ears sometimes cut off?

THE *La Camera Oscura*, of Florence, Italy, contains an artistic portrait of a lady printed on Dr. Liesegang's aristotype paper. We are printing to follow suit.

AT the Glasgow Association meeting, Mr. Urie suggested that the shadows of negatives intended for printing on Eastman paper be brushed over with gum or varnish, so as to make them print with more brilliancy.

DURING the discussion of Wm. Crooke's paper on Photographic Portraiture (page 182), at the meeting of the Edinburgh Photographic Society (where it was read) some useful remarks were made by the practical workers present.

Mr. J. McKean said the usual preference was for a north light in the studio when it could be got, but he was compelled to make use of a south light, and found it quite suitable except in brilliant sunshine.

F. Moffat thought the suggestion to use tissue-paper as aid to the proper lighting of deep-set eyes a good idea.

J. Howie thought the idea of several pre-

liminary sittings being given before a large work was undertaken ought to find favor and recommend itself. Photography was distinguished for a realism and truth which were not at all times picturesque; still these qualities were so valuable that they alone were sufficient to make our art ever hold its own.

H. Bibbs said he used at times as a reflector a screen covered with reddish blotting-paper. It conveyed a soft, flesh-colored light to the face.

W. T. Bashford said the hints given were very useful, but, like other good rules, had their exceptions. Each sitter requires to be considered on his own merits, and peculiar cases will run counter to all ordinary rules.

Mr. Forgan referred to Mr. Crooke's remarks upon the eye as conveying mainly the expression of the mind, so that, though the lower part of the face were hid, the eyes alone would tell what passion ruled at the moment. He thought that, expressive as the eyes were, it commonly needed all the features to interpret mental emotions unmistakably.

William Hume showed how a quite efficient enlarging apparatus could be improvised out of an ordinary packing-box, by making a few simple adaptations. He also exhibited a number of gelatino-bromide enlargements made by it. The means by which the sensitized sheet was placed in the exact position desired, after focussing, was ingenious. Three drawing-studs were placed in a triangular form as guides, and the paper placed quite up to them, and fixed there. Mr. Hume used a condenser, but no reflector.

Mr. Forgan recommended that a large portrait combination should always be preferred to a rapid rectilinear, in enlarging, because of the more general illumination it gave.

Mr. Turnbull said that when lamp flames were employed, they should be set edge-wise to the lens; large spread flames did not do so well.

THE Pittsburg Society holds an exhibition this month.

MR. JOHN CARBUTT has given twenty-five dollars' worth of his plates to be sold for the

expenses of the Triune Exhibition in this city.

THERE are sixty-eight "lockers" in the rooms of the New York Amateur Society now.

THE exhibition of the lantern slides contributed to the Exchange Club by the Cincinnati Society revealed some lovely things and some fine projections.

At the February meeting of the French Photographic Society, M. Fabre showed with much praise a new objective made by Mr. Dallmeyer, which possesses all the valuable qualities of simple objectives, but giving at the same time, on one hand the rapidity, and on the other hand the linear correctness of the aplanatic lens. This new combination enables us to operate with a stop having a diameter equal to one-tenth of the focus. It is possible to cover, with this simple objective, formed of three adhering achromatic lenses, a focal plane of which the largest side is one-half the focal distance. By using a stop of one-thirtieth of the focus, the definition is equal to the focus less one-fifth of the focus. The angle embraced is forty-one degrees, as is seen. What distinguishes this objective is, that whilst it is simple, it acts as a double objective. A great depth of focus especially is attained, which is so difficult with double objectives, when the objects to be reproduced are situated at a little distance from the camera. The correctness of the lines is almost perfect on the focal plane, and there is hardly any tendency to distortion even at the edges in the negative shown by M. Fabre (27 by 33 centimetres). This instrument seems to us called to fill a want by giving satisfaction to persons who might desire to obtain with a simple objective the advantages realized with the double, and for this reason it will certainly meet with success.—*Moniteur*.

At the same meeting M. Léon Vidal deposited with the President an envelope containing platinum and silver prints, for the purpose of verifying hereafter the permanence offered by prints made with pure platinum, silver toned with platinum, and

pure silver. Three fragments of these prints were confined between two glass plates, whose edges were fastened with strips of tin foil; three other fragments of the same points were left exposed to the air. This envelope, dated February 4, 1887, and sealed with wax, will be opened when the Society sees fit to do so. The fragments confined between the glass plates, and thus removed from any exterior cause of change, will serve to show whatever changes, should there be any, that have occurred in the fragments exposed to the air and dampness.—*Moniteur*.

At a late meeting of the Glasgow Association Mr. Falconer gave a demonstration of the preparation and development of collodion dry plates, made by the modified Fothergill process, which, he said, he had used continuously for over twenty-six years. Doubtless there will be a return to collodion emulsion yet.

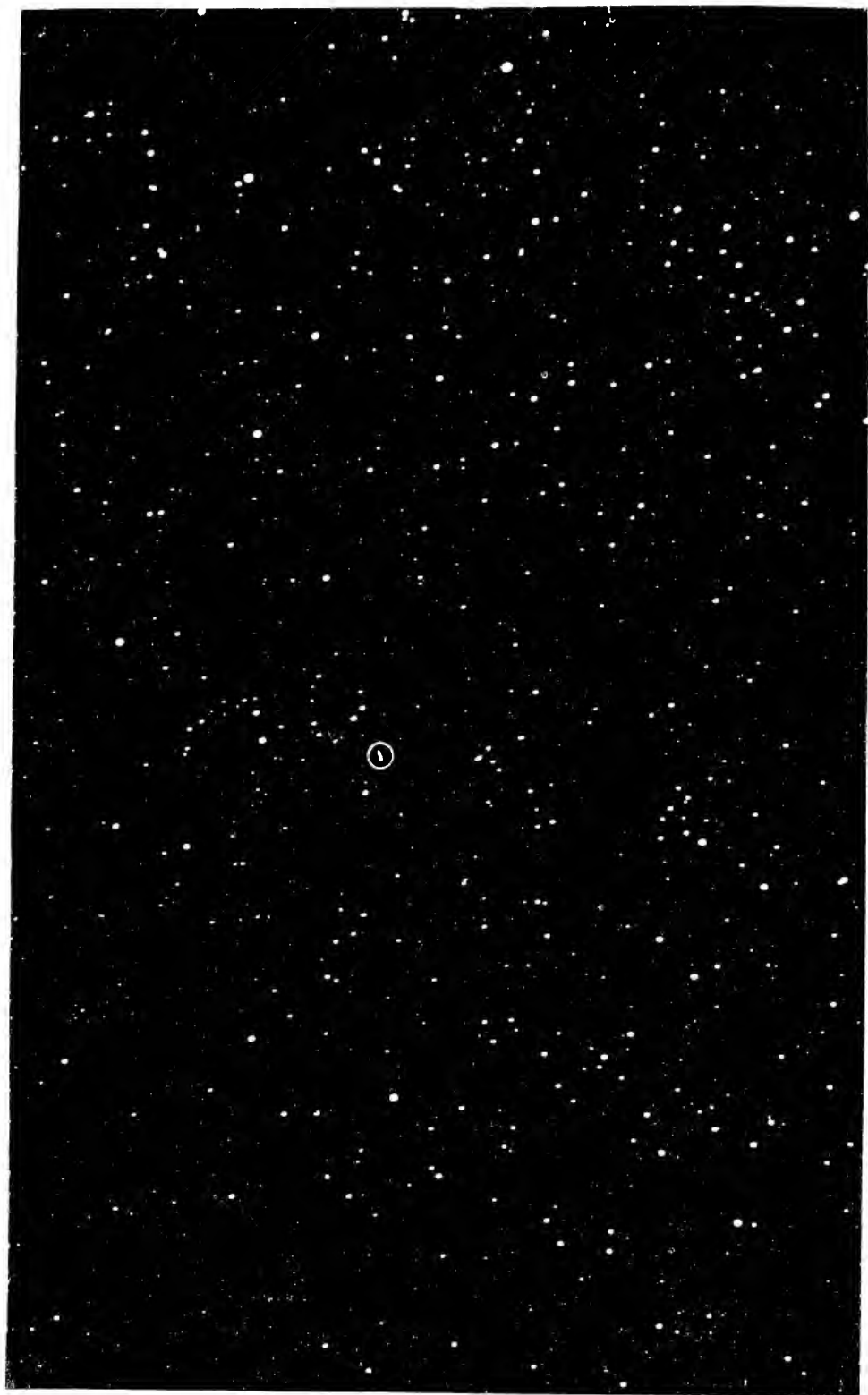
At the recent Photographico-Scientific Exposition, at Berlin, the "biggest things" came from America. It included Mr. Rowland's thirty-six feet solar spectrum and huge views of the Yellowstone Park, by W. H. Jackson, we suppose.

THEY sell a complete camera, lens, a packet of plates, and developer material for "three and sixpence" in London.

### HOW THE CAMERA CAUGHT A STAR.

TO-DAY I am sending you what is quite a triumph of modern photography for astronomical purposes, and of a size, I trust, to suit exactly a page of your PHILADELPHIA PHOTOGRAPHER, without any alteration.

The asteroid Sappho had been lost to ordinary astronomical observation, by having entered on a region of sky so innumera- bly studded with little stars, each of them, to momentary vision, just like the asteroid Sappho, and Sappho to them, that there was no distinguishing amongst so many little dots of light, which was the dot, representing a small planet, and not a distant sun. So appeal was made to a very go-ahead amateur astronomer, Mr. Isaac Roberts, of



Maghull, near Liverpool, who has erected a fine observatory for specially photographing the stars, by means of a clock-moved equatorial camera, in the shape of a reflecting telescope of 20 inches aperture, and 8 feet focal length. He therefore pointed the instrument to the part of the sky generally where the asteroid was expected to be; and, profiting by the long exposures which are allowed by the modern dry plates, he kept the telescope directed to the same spot of the moving heavens by clock-work for a whole hour. On developing the plate, behold there was a sprinkling of stars over the whole field; all of them round dots, except one, and one only, and that had drawn itself out into a little line. That line was the portion of its orbit as a planet, which the planetoid or asteroid Sappho had necessarily described in the space of one hour. So Mr. Roberts, with a nice pair of compasses, drew a little circle round that line to emphasize it, and here it is, detected at once by photography, which can go on accumulating and recording for an hour, in a way that no human eye can do.

I have compared the numerous little round star-points on this photo, with those on another independent photo, of the same part of the sky, taken two days after, and have identified so certainly scores and scores of them in their peculiar configurations and relative brightnesses, that I have the utmost confidence in the truth of what I now send you, *in the whole*, and the non-importance of here or there a little accident of a hair on the glass plate, or a bubble in its substance, to which every photo is more or less exposed.

Further, if you decide to present a reproduction of this plate to your readers, please don't reduce it, or it must lose much of its commending power;\* and, having been already magnified somewhat from the negative, it represents now the field-scale of a telescope 25 feet long. Now, take a sphere 50 feet in diameter, and compare how many papers the size of this photo you could lay upon that spherical surface, touching, but not overlapping, each other. Then multiply that number by the number of star

points contained in this photo, and you may arrive, not at the whole number of suns in the Sidereal universe, but at the number of them visible by their actinic rays to a telescope of 20'' aperture, with an exposure of 60 minutes; while every increase in the size of telescope, and duration of photographic exposure, shows more and yet more of these wondrous orbs.

C. PIAZZI SMITH.

### PRACTICAL POINTS FROM THE STUDIOS.

**EOSINE.**—The price lists of manufacturers of aniline colors show at least twenty-two different eosines, and the price varies from one to twenty francs per pound wholesale. This is very embarrassing for those who want to make experiments. The dark-blue kinds are, it appears, more suitable for photography than the others. There are also several qualities of erythrosine. Why do not the manufacturers of chemical products indicate the quality suitable for photography?—*Journal de L'Industrie Photographique.*

**MR. HARTLEY**, Professor of Chemistry, asserts that the addition of a little borax to the water used in mixing the colors for aquarelle painting, prevents in a certain measure these colors from fading under the action of the light. He also recommends, to pass over the paper, before applying the colors, a dilute solution of borax. He believes that the acidity of the colors and of the paper is one of the causes affecting the permanence of the tints, and that the use of borax removes this cause.—*Revue Photographique.*

A MODIFICATION of the rule to convert the degrees of the Colsi or Centigrade scale to Fahrenheit is given as follows: Double the number of Centigrade degrees, subtract one-tenth of the amount, and add 32 to the remainder. For temperatures below zero Centigrade, subtract 32.

IN reply to M. K. F. under head of "Queries" in the PHILADELPHIA PHOTOGRAPHER of February 5th, I would say: An advertisement appeared in the *Century*

\* We have reproduced it exactly.—ED. P. P.

for January, 1886, in which one, Sereno N. Ayres, Micro-photo Artist, Jamestown, N. Y., engages to "make to order, micro-photographs, and mount them on watch chains, etc." Respectfully,

C. E. HOWARD.

ISOCROMATIC PHOTOGRAPHY. — From John Parry, of the Ebbw Vale Iron Works, we have received a note of his experience. He says: "I have been experimenting with plates stained with eosin, and I find, with J. B. B. Wellington, that mere staining with eosin has little or no effect on the sensibility of the plate to green or yellow. On the contrary, when silver nitrate is added the plates become orthochromatic. Much depends, however, on the quantity of silver nitrate used. 1—Plates stained with 200 water containing 0.010 grains eosin, 4 c.c. of ammonia, and 0.30 grains silver nitrate invariably fog; 2. Same bath, containing 0.15 grains silver nitrate, fog slightly; 3. With 0.075 grains silver nitrate, do not fog, and are sensitive to green; 4. 0.0375 grains silver nitrate, not so sensitive to green, etc., as No. 3, requires forcing with ammonia to bring out the part of the spectrum up to the wave length 5600. It seems to me there is an opening in this direction for artistic landscape work. According to the prevailing tints, for instance, if it is judged that blue is the predominant color, a plate sensitive to green should be used; on the contrary, if green predominates, one less sensitive to green should be used. No. 3 would suit the latter, and No. 4 the former.

CHEMICAL CHANGES PRODUCED BY SUN-LIGHT. By E. Duclaux.—Many organic compounds are affected by solar radiation in the same way as by microbes, the products of the change being water and carbonic anhydride, with other substances which are relatively stable in the conditions under which they are produced, and are identical with the products of the action of microbes. Cane-sugar in neutral or alkaline solution is not affected by prolonged exposure to sunlight, but if slightly acidified even with an organic acid it is readily inverted by solar radiation. The solution of invert sugar undergoes no further change so long as it remains acid, but if made alkaline the glucose is rapidly decomposed with formation of water, carbonic anhydride, oxalic, formic, and acetic acids, and about 3 per cent. of alcohol. A similar change takes place, although less rapidly, out of contact with the air, and hence it is evident that the decomposition is due to internal combustion. Lactose and lactates also yield alcohol under similar conditions. The exact nature of the change in any case is modified by the nature of the source from which oxygen is absorbed (air, salts of platinum, gold, mercury); but the chief products are practically the same from all substances. These products are alcohol, oxalic acid, acids of the acetic series, leucine, carbonic anhydride, water, etc. Certain differences are, however, observed. Tartaric acid gives aldehyde in place of alcohol, and the alcohols, if oxidation is regular, tend to produce the corresponding acid of the acetic series.—*Journal Chemical Society.*

## Editor's Table.

OUR Philadelphia friends do not forget us. The *Ledger* (Mr. GEO. W. CHILDS' paper) of Feb. 7 speaks thus of this journal:

"The first of the February numbers (the PHOTOGRAPHER is now issued twice a month) contains the usual budget of hints for the use of photographers. Among the curious papers in this number is one, a translation of Mr. Ch.

V. Zenger's paper on phosphorography applied to the photography of the invisible. It appears that there are many objects in nature which emit invisible rays sufficiently actinic to affect phosphorescent or fluorescent plates, and, to a limited extent, photographs may therefore be taken of the invisible. This number of the PHOTOGRAPHER is nicely illustrated, not only by

the usual frontispiece photograph, but by 'Moss-types' in the text. Mr. Wilson keeps his magazine strictly to its specialty, and every article in its pages bears some relation to photographic art, and nearly all are of direct value to the photographer."

J. H. C., Worcester, Mass., asks us to "give in the March number the process of making bromide prints." He will find it all in our issue for July 17, 1886. We will send him a free copy on receipt of his address.

"AFTER carefully reading the *Mosaics* which you sent me, and also trying some of its formulæ and getting such fine effects, I am perfectly delighted with the book. Although it only cost \$1.00, yet I would not take \$10.00 for it and be without its knowledge."—JAMES MCKEOWN, Anderson, Ind.

WE have a postal card which is unsigned, undated, and without address; the post-mark is illegible. This, which we take as a text, is only one instance of the carelessness, sometimes phenomenal, of some of our correspondents. Letters are still sent to our old address in Philadelphia; and we have received, thanks only to the care and system in our excellent Post-office, letters addressed to every possible combination and variation of the numbers 8, 5, and 3, or simply to "New York." We have no doubt there are estimable photographers at this moment lost in wonder as to why their communications are unanswered, when they are themselves to blame. Please, then, be careful to get our address straight, and to add your address in full.

THE judges for the coming Exhibition of the amateur photographic societies, held March 26-April 3, have been appointed, as follows: JAMES D. SMILLIE, Chairman; E. WOOD PERRY, Jr.; C. Y. TURNER, G. G. ROCKWOOD, GEORGE C. COX. The first three gentlemen, as many of our subscribers know, are very well-known artists of this city. Such a Board ought to stir competitors up to do and send in only their very finest works. An award from them will be an award indeed to be proud of.

The New York Society held an interesting lantern exhibition on February 23, showing 100 slides sent by the Cincinnati Photographic Club, and also some the work of members.

The Photographic Society of Philadelphia met on March 2. The paper for the evening

was read by Mr. CHARLES R. PANCOAST, upon "Photographing at Niagara Falls. It was illustrated by the lantern, as was an interesting talk by Mr. FREDERIC E. IVES upon phosphorescent photography.

FROM the 1st of January, 1887, the Paris *Amateur Photographe* appears as a semi-monthly instead of a weekly publication. The price has also been reduced one-half—twelve francs. The new editor, M. GABRIEL ROUGIER, thus addresses his readers:

"In future this Review, that M. VEYNES, the founder, has raised so high in the world of amateur photographers, will appear with scrupulous regularity. The object with which it started, to render more popular the photographic art, remains the same. We intend, however, to make it more complete, so that, little by little, by novelties and illustrations, it will have in France the importance of the splendid photographic journals of America."

A pleasantly flattering touch, the last. We wish the new editor and the new departure much success.

PICTURES RECEIVED.—From Mr. W. G. C. KIMBALL, Concord, N. H., come some views of the late railroad disaster at the White River Bridge, Vermont. Some of them were taken the day after, while the ruins were still smoking. They are excellent works, and speak well for Mr. KIMBALL's enterprise. He has a series of twenty of them, all most interesting. Mr. WATKINS, of San Francisco, is one of the old-time photographers, and a good one. His views of Columbia River scenery, in Oregon, we have not seen surpassed. In the way of instantaneous work, we have two magnificent things, really unequalled, of the great blasts by which the channel of the Columbia River was cleared. He has in both caught the very most interesting moments—once at the first explosion, the gravel and rocks flying out of a cloud of turbid water; and again when the column then seen starting reaches its utmost height, over a thousand feet up in the air—a superb spectacle. From Mr. D. BANKS, Sleepy Eye, Minn., some excellent views of snow-plows pushing their way through great railroad drifts; also some fine examples of his portrait work.

TESTIMONIALS come in more and more for the excellent work of M. LEON FAVRE in photographic enamelling, as it becomes more widely known. His results are certainly beyond any-

thing else of their kind. His card will be found in another column, and tells of a novelty well worth trying.

WE have notice that the well-known firm of stockdealers, BUCHANAN, SMEDLEY & BROMLEY, has been dissolved, and the business will hereafter be carried on in the name of BUCHANAN, BROMLEY & Co., at 1030 Arch St., Philadelphia. Our best wishes go with the new firm in their new establishment.

THE leading article in the March *Scribner's Magazine*, on "The Stability of the Earth," by Prof. N. S. SHALER, is remarkable for its excellent and apt illustrations. They were nearly all from photographs in Prof. SHALER's large collection.

MR. CHAS. BIERSTADT, of Niagara Falls, N. Y., sends us his fine catalogue of views and slides of notable parts of the United States. It includes very nearly 1000 views of Niagara, and many more of Colorado, California, the White Mountains, Florida, etc. Many in his collection can be had of no other maker, and it is remarkably rich in views of our country.

AMONG the art journals of New York, the *Studio* holds an excellent place. In the not too dazzling constellation of art criticism it is a shining light, with its clean-cut, capable, unconventional utterances. It is very much to the front of the artistic march. Like all the progressive journals, it makes liberal use of the newer photographic processes in its illustrations. Lately it has added etching to its illustrative processes. In the last number was a plate by Mr. S. L. SMITH, of the crystal "Fritsche Ewer," a remarkable bit of still-life work; and it promises, also, a portrait of JOHN QUINCY ADAMS, and a plate by the famous French etcher, lately our visitor, RAPON. The latter is exciting much expectation.

Some of the process cuts have been excellent. Among them were two most interesting studies in portraiture by Wm. M. CHASE—his portrait of Mr. WHISTLER, and his "Woman in White."

WE regret to learn that our old friend, Mr. E. BIERSTADT, of this city, has met with a sad loss in the destruction by fire of his albertype and photo-engraving establishment at 53 and 60 Reade St. His establishment was the first in this country to adapt these photographic pro-

cesses to trade uses, and one of the oldest to make them for any purpose.

The total loss was about \$25,000, hardly one-third of which was covered by insurance. All of an enormous stock of negatives, many utterly irreplaceable, were destroyed, with much costly and valuable machinery and apparatus. Mr. BIERSTADT has taken up quarters for the present with Mr. KURTZ, at Madison Square. We sincerely sympathize with him in his loss, but trust he may soon be re-established and on the road to increased prosperity.

*The Photographers' World* and the *News* are both embellished by a full-page autoglyph of "Sea Gulls at Southport," a remarkable picture, which we hope to show our readers more about presently. Certainly it has never been excelled. It is by Mr. C. T. MALLIN.

*The Photographers' World* improves with every issue. It is a strictly professional journal for photographers and dealers. It is published by Messrs. PERCY, LUND & Co., Bradford, Eng.

MR. M. L. REQUA, of the Pacific Coast Society, called upon us recently and gave us a glowing account of the status of our art in the West. Mr. REQUA is himself an intelligent enthusiast in photography.

A NOVEL and useful feature in our magazine will be hereafter the appearance of complete translations of some of the best photo books printed in the French and German language, and therefore inaccessible to the most of our readers. Thus our readers will come into possession of some valuable works, complete, without any extra charge. We believe this will be more acceptable and useful than so much "history repeated." There is no need of cramming a photographic magazine, in these growing days of our art, when there is so much to be had that is of practical value. We begin this new feature in this issue with the first instalment of Prof. Pizzighelli's admirable work.

THE SUTER lens sales are rapidly increasing, and wherever they go they win name and fame. We have a 20 x 24 print of an interior which was made by a SUTER lens that, in technical excellence, to our mind cannot be beaten. The subject, is full of minute articles of wood, bric-a-brac metal, fibres and fabrics, and some photographs, all of which are equally well and

splendidly rendered. Messrs. ALLEN BROS., Detroit, Mich., are the sole agents for the United States, though all dealers sell the SUTER lens. Examine into their advantages.

EDWIN BOOTH, at 24 years of age, was photographed by Mr. JAMES MULLEN, then at Cincinnati, now at Lexington, Ky. Recently Mr. MULLEN found the 11 x 14 negative to be "as good as new" (taken in 1856), and has sent us a print from it. It is better than much of the work done to-day, and an interesting souvenir of the best living actor. The dress is quaint—rather dashy, but there is the same noble head and expressive mouth which speaks "words, words, words," in such a way as to thrill one to the very heart.

IODIDE OF STARCH.—Will some of our readers kindly give one of our correspondents their formula for making iodide of starch?

QUESTIONS TO THE CRAFT are being answered, and the answers are doing good. But that we may have as much variety as possible, please take an interest with us and answer more generously.

THREE new and useful articles have been placed upon the market recently, to which we are asked to call attention. 1. FLANDREAU'S erythosene solution and XANTHEINE collodion, for use in orthochromatic photography, and FLANDREAU'S hypo S. P. C. eliminator, which latter has been proven to be the most effective and harmless solution possible for removing hypo from prints. Every bottle of the eliminator is accompanied by a book of iodide of starch test paper, which denotes at once any hyposulphite of soda which may be in the gelatine film of a negative or the albumen film of a print. Full directions accompany each bottle. See advertisement in another place for price.

OUR esteemed contemporary, the *Camera*, gives *Mosaics* a kindly notice in its last issue. A "very useful and entertaining volume," it calls it. After quoting a portion of the introductory article as to its title, the *Camera* says, "The articles contributed by different workers in photography are each of a different pattern and color, but all contributing to an harmonious whole. The pleasure of reading is enhanced by good printing and good paper."

ANOTHER English journal, the *Amateur Photographer*, gives high praise, which we value, to the embellishment of our issue of January 15.

In fact, it says, "it is the best reproduction we have ever seen. The subject lends to the perfection of the picture. There is an expression of loving care in the manner in which the violin is handled which marks him as an artist of no mean order. But the mechanical part of the work is exquisite. No photogravure or Goupil plate has ever, in our opinion, turned out a print to equal this plate." The plate was certainly one of the most successful reproductions we have ever seen.

WE received from the Edinburgh Photographic Society an invitation to their popular meeting held February 9, at which a lantern lecture on SIR WALTER SCOTT, with a short notice of JAMES HOGG, was delivered by ANDREW PRINGLE, Esq.

CLEAN HANDS.—Messrs. C. H. CODMAN & Co., Boston, have just introduced "ESBACH'S Hand Cleanser," a compound that will be very welcome to the lover of clean hands. It is guaranteed to contain no poisonous ingredients. It is a strictly pure vegetable compound, which removes pyro and all developer stains from the hands, and makes them soft, smooth, and white.

THE pastel is one of the most pleasing of the methods of "finishing" photographic portraits. It has a charming freshness and texture all its own to commend it, and seems growing in popularity. Very timely and welcome, therefore, is a new translation of GOUPIL'S *Treatise on Pastel Painting*, published by MESSRS. F. WEBER & Co., of Philadelphia, 50 cents. GOUPIL was one of the best of the French pastel artists, and his treatise is the standard work on the subject.

In a clear, efficient style, it covers the subject. Beginning with a few words on the general principles of color, it then takes up the materials used in the art. The different sorts of crayon, their preparation and use, and the properties of the principal colors, are noticed, with a list of the most reliable ones. The different kinds of paper and their preparations are touched on. Some very valuable remarks follow on the cultivation of the power of perceiving colors, and on the education of the eye. Directions for portrait work, including the treatment of face, hair, drapery, etc., are then given with considerable detail; and the book closes with some excellent bits of general advice on working and experimental practice. The work certainly will prove most valuable, indeed indispensable, to the pastel artist. It has a field of its own, which it goes over most ably and thoroughly. There is no other book that covers it so minutely.







G. M. DEANE,

SWEET SPRING.

GALVESTON.

THE  
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**NOTES FROM LONDON.**

BY T. C. HEPWORTH, F.C.S.

THE event of the past month has been the meeting of the Photographic Conference at the Hall of the Society of Arts. This Conference has been initiated by the Camera Club, and its President, Captain Abney, who is also President of the Club, ruled over its proceedings in a very pleasant manner. The Conference met for business at 11 o'clock in the forenoon, and adjourned at 1 o'clock, to give all present an opportunity of visiting the Club hard by, and examining the pictures and apparatus which had been gathered together there for the occasion. The reading of papers was resumed later on, and the proceedings came to a termination with a dinner at the Holborn Restaurant.

In looking around the hall during the Conference, it was pleasant to see so many well-known faces. Although the meeting had found its origin among amateur photographers, there were many professional workers present who were not content merely to sit and listen to what was going forward, but took active part in the discussions, and gave freely of their valuable experience. Photographers I have always found to be most liberal in this way, and they differ very much from some other professional workers, who never seem able to do any one a good turn unless there is something to be made out of the transaction.

It is almost a truism that one often learns a great deal more from the discussion fol-

lowing a paper than from the paper itself; hence it is always better, if possible, to hear the matter read than to depend upon after-reports. The reporters too often cut down the discussion to very narrow limits, and perhaps ignore some valuable suggestion in their eagerness to compress the matter reported. Many little useful pieces of information came out in discussion during the Conference. Among these was the advantages which will probably be gained from the new Welsbach incandescent gas burner. This burner I have since had the opportunity of seeing, and I certainly think that it has a great future before it; not only for photography, but as a general illuminant. At first sight it looks like an ordinary Argand burner, with its customary glass chimney, except that the light given is most intensely white. I saw it burning by daylight, and yet it showed no tinge of yellowness. It consists of a bunsen burner, in the blue flame of which is suspended a "mantle" of muslin, which has been charged with the incombustible oxides of the metals zirconium and lanthanum. Of course, the muslin disappears when the burner is first lighted, leaving its tender form only like a pearly white mineral shroud. This "mantle," of the shape of the finger of a glove, is hung in the flame from a platinum wire support, and becomes white hot. The lamp gives out a glow, rather than a flame, and if, as stated, the mantle has a life of one thousand hours, and can be renewed at the cost of a few pence, the system must command success. The consumption of two and a half

feet of gas per hour will yield a light of 18-candle power. It is for purposes of projection and enlarging that photographers will look to this new illuminant, for it is very rich in actinic rays.

Another form of gas-lamp for enlarging purposes also came under the notice of the Conference. This was the albo-carbon light, which is now much used for general purposes in this country. \* Mr. Traill Taylor has been experimenting with it for the purpose named, and has made some additions to it which add to its efficiency. As reports of his paper will have reached you, I need not dwell on the matter further.

I was at Salisbury the other day, and was shown by an amateur a photograph which he had taken of the interior of the magnificent Cathedral there. I noticed that the pillars were sloping, and, of course, began to improve the occasion, as the parsons say, by pointing out the evil of not keeping the camera level, and the sin of any backsliding with regard to the swing back of that instrument. My listener grinned a ghastly grin, and said, "Come to the Cathedral and see whether *you* could have made them any straighter." I went, and was rather taken aback when I noticed how the pillars in question were terribly out of the perpendicular. It seems that the tower and its steeple (the highest in England) which crown the roof were added some time after the main building was finished, with the result that the great weight had exerted an outward thrust on the pillars underneath. As no further movement has taken place for the last 200 years, it is to be hoped that the venerable pile will last for a few centuries yet.

## ISOCHROMATIC PHOTOGRAPHY.\*

BY W. H. HYSLOP.

BEFORE commencing my paper, I would express my exceeding regret that our worthy President has not taken this subject of "Orthochromatic Photography" out of my hands, for had he taken it up and given us the results of careful research and immense knowledge of the subject, this would, in-

deed, have been a red-letter day in the annals of photography.

At one time I intended to give you a sketch of the history of orthochromatic photography, but I have come to the conclusion that our time will be better taken up discussing what can be done in the future rather than what has been done in the past, excepting the last three or four years. For those, however, who care to go into the history, I would refer them to the various journals of photography from 1873 onward.

There is one point, however, in the history, which is indeed strange, and that is the great want of general interest in this most important subject.

When we have named Waterhouse, Vogel, Carey Lea, Eder, Ives, and Abney, we have named, almost without exception, the only men who have written upon this subject during the last fourteen years. Why is this? Is it because we are too conservative, or is it that we have not believed in the experiments and statements of these workers?

In 1883, a patent was taken out, and orthochromatic, or rather isochromatic plates, as the maker prefers to call them, were put on the market. They do not seem to have been generally successful, or brought to common use, and why? Probably because they were found unreliable. For my own part I think that unbelief in any chemical process of orthochromatic photography has been at the bottom of this want of interest.

In 1885 a great cry arose throughout the length and breadth of the British Islands, and why? Because a German firm of photographers had been given permission to erect a corrugated structure in Trafalgar Square, and were allowed to photograph the national pictures. It is not necessary for me to go into the whys and therefores of the question, but I would like to refer to a paper on the subject, read before the Photographic Society of Great Britain, by Mr. Bird, of the Autotype Co., a paper marked by extreme good feeling, and a desire to give to an opposition firm the full credit due to them.

The paper was illustrated by many examples of Messrs. Braun's pictures, as well as by photographs taken some years earlier by a Berlin firm, and showing the great

\* Read at the London Photographic Conference.

advance in the rendering of the various colors.

In the discussion that followed, it was, I think, the general opinion that the retoucher's pencil and brush had more to do with the change than any chemical means, and I would just quote "Free Lance" in the *British Journal of Photography* of May 29, 1885. He says: "Mr. Bird's remarks, temperate and well thought out, are well worthy of being remembered, and, while leaving to his hearers the task of coming to a conclusion as to Messrs. Braun's mode of producing these excellent copies, he enables one to make a shrewd guess at his own opinions.

"It is true that the photographic public have for some time had before them details of a method of photography of great novelty; but, as the lecturer said, 'they were not impressed with laboratory experiments, they remember many discoveries that came to nothing, and improvements that were delusions; they are not credulous of the practical application of new ideas.'

"These remarks are not more disheartening than true, and the condition described is not to be explained upon any single basis only.

"Many photographers rarely read a scientific article; others are indifferent, and prefer only to accept acknowledged facts, trusting to their commercial instinct giving them the ultimate advantage of their more scientific brethren, perhaps, most potent of all causes still, others have had such experience of reputed grand discoveries which have eventually proved to be ignominious failures, that they become wearied, and only try fresh plans when they are shown to be commercially successful by the touchstone of experience.

"It would be impossible for one man to try all the new processes invented and published; and a few years' experience will show that those ushered in with the most blatant assertions of excellence are usually the least meritorious, and the deserving, yet modestly proclaimed, discoveries get shelved.

"As Mr. Bird plainly puts it, photographers have had before them full accounts of a method of taking photographs in which

colors are represented in a true scale of tones, but they have not adopted the process. Messrs. Braun have produced copies of oil paintings far superior to any previous work of a similar character; do they owe their success to clever retouching, or to some modification of processes not new? We have, through the writer, Messrs. Braun's word that the latter is practically the case, and we have no right to doubt their word.

"They lead us to infer that the method is complicated, and this is what might reasonably be expected; further, we are told they will keep their knowledge to themselves as long as they can, and for this also no one can possibly blame them. If the improvement in Messrs. Braun's pictures should be owing to new chemical methods, photographers may rest assured that they will have to bestir themselves and do likewise; they cannot afford to be stationary."

Notwithstanding the talk at the time, the subject seems to have slumbered again, and for eighteen months nothing much was heard of it; but a time of awakening came, and all credit is due to Messrs. Dixon & Sons for that awakening.

The gentleman who has an interest in the Tailfer patent for this country has at the various societies' meetings done his best to minimize the services of Messrs. Dixon, but I am quite sure that I am not alone in thinking that, had Messrs. Dixon not issued their successful plates, we would never have heard so much of the Tailfer patent, nor would the gentleman have bought the English interest in it.

I now come to my own experiments, and I will give you formulæ, and show examples from the plates prepared by the various formulæ. The plates used in the following experiments are ordinary commercial plates, and the only care taken was that they should all be from the same batch.

It has been said by the unbelievers that the orthochromatic effect is a mere matter of exposure; that, supposing you expose an ordinary gelatine plate behind a yellow screen, and long enough, you will get quite as good an effect as by the staining process. I have never yet heard any of them say how long the exposure should be in order

to get the desired effect, but on the card marked A, which will be passed round, you will find prints from ordinary plates exposed on this parti-colored board, with and without a yellow screen; the first was given 10 seconds without the colored screen, the others 30 and 60 seconds and 5 minutes with the screen.

If you examine the prints you will find that in the one exposed 10 seconds there is no orthochromatic effect whatever; the light red is fairly good, but the other colors are in exact opposition to what they should be. In the 30 seconds one you will find that the violet and dark blue are darker than in the first, but you will find also that the orange and yellow are darker too, and the light red lost entirely; the 60 seconds plate is, I think, no improvement on the 30 seconds. We now come to the one exposed 5 minutes, or ten times the normal exposure, and here, I think, we get an improvement. We get the light red back again, but, otherwise, there is very little difference.

I think these examples clearly show that to use an ordinary plate, exposing it a fair length of time, and expecting to get a good orthochromatic effect, is not at all practical.

I will now take the series marked A. You will find at the top of this and all following cards a print from an ordinary plate exposed without screen, so that you may compare the various results with it. The first two you will see are from the Tailfer plates; they give a fair effect, but I may tell you that in order to get the two negatives I exposed two dozen plates. I couldn't keep the films on the glass; every known means were tried to save them before and after development, but all to no purpose. You can easily understand, if this kind of experience befell many who tried them, why their progress in this country has been so slow.

The next two are plates prepared by myself according to the specification of Messrs. Tailfer and Clayton, and exposed with and without screen.

I had tried this specification some time ago without success, and Mr. William Bedford stated at one of the Photographic Society's meetings that he had not been successful, but in order to give it a fair trial I

tried it again with a like result. The examples give no more trace of orthochromatic effect than do ordinary plates exposed with screen for 30 seconds, and yet these are treated with tetra-bromo-fluorescin, one of the claims of the patent.

The third pair on the card are Edwards's isochromatic plates, which give good rendering of blues and yellows, but at the expense of the reds, and this fault is, I find, in all the commercial orthochromatic plates.

And at this point I should like to make an assertion, and for this reason. Mr. Edwards stated, at the last meeting of the Photographic Society of Great Britain, that his plates would give a good orthochromatic effect, in daylight and without colored glass. Now, I most emphatically state that there are no plates in the market which will give such an effect without a screen, and I very much doubt if anything but a collodio-bromide plate, treated, will give a result different in any way from an ordinary gelatine plate; you can judge for yourselves, by looking at the examples.

And now let us turn to another card, B, and first of all we have Dr. Vogel's azaline plates. For some time past a great question at photo-meetings has been, what is azaline, and where can you get it? I have tried many places for it, but have never found it; so when the learned professor took out his patent some weeks ago, I thought I would find out now, but no; I am as much in the dark as ever. The doctor does not claim azaline, but simply all colors which readily fade when exposed to light.

However, it does not much matter what it is, for, if the plates I had from his agent here are a fair sample, you can easily see their color-sensitive qualities are very poor indeed.

The next two examples are from plates of my own preparation, and I think, if you look carefully at them and compare them with the examples of Dixon's plates, underneath, you will say that they are in no way behind, and that in some things they are well ahead of, the commercial plates. The improvement is in the reds, and they give generally a better gradation.

The great trouble with them, however, is that they do not keep, and that you must

pour on the bromide and ammonia first before the pyro, or else you will get silver stain; but for any who wish to have a really good plate giving good gradation, and if they can prepare them the night before requiring, the above will give good effects.

The formula stands thus:

*Stock Solution.*

- Erythrosine . . . . 1½ drachms.
- Ammonia 88° . . . . 1 drachm.
- Alcohol . . . . . 6 ounces.
- Nitrate of silver, 1 drachm converted into chloride with hydrochloric acid, thoroughly washed, and re-dissolved in ammonia and water, bulk made up to . . . . . 2 ounces.

To make up the bath take

*Stock Solution.*

- Erythrosine . . . . 1 drachm.
- Chloride sol. . . . . 20 minims.
- Liq. amm. 88° . . . . 1 drachm.
- Water . . . . . 6 ounces.

Place this solution in any convenient vessel, and bathe your plate for one minute; then wash well under the tap, and put it aside to dry, which it will do in a few hours.

As the change in the nature of the plate does not take place until dry after treatment, it is not necessary to use a very weak light. I use orange-glass behind ground-glass, and have not found any fog from it. I use the same for development, only taking care that direct light does not fall on the plate until the image begins to appear, after which the plates seem to stand quite as much light as ordinary.

On card C, you will find examples from plates prepared with what is sold as Eosine B.

I am not chemist enough to know the difference between this and plain eosine, but you will see that plates prepared with an addition of silver have no orthochromatic effect.

Series D give examples of plates bathed in a solution of Magdala red, a dye mentioned by Dr. Vogel, and said to have good effect. I have not found it so.

Series E are examples of chlorophyl plates,

the favorite process of Ives. I fancy there was something wrong about my chlorophyl, although it was from what is known as blue myrtle, but at any rate I got little effect from it.

And now we come to the last card F, and you will find prints from plates prepared with erythrosine plain, and with the addition of citrate of silver; this last has no advantage over the formula given.

At the meeting of the Photographic Society of Great Britain, when this subject was discussed, the question was asked whether negative paper could be treated. I replied to the effect that it could; and I have here to-day a few orthochromatized stripping films, which any who care to see may examine.

[Translated for *The Philadelphia Photographer.*]

**TRANSFERRING PRINTS ON GLASS BY THE COLLODIO-CHLORIDE PROCESS.**

BY DR. ED. LIESEGANG,  
DUSSELDORF.

I HAVE just found a very simple process for making diapositives and the reproductions of clichés. It consists simply in using gummed paper instead of gelatinized paper. The process itself is not new and has been described by M. Geymet in his treatise on heliographic engraving. Here is the manner in which I operate:

Take some paper covered with a film of gum arabic; pour slowly over it some collodio-chloride and allow to dry. Printing is done in the ordinary printing frame. The print is placed over a plate wet with cold water, the printed side underneath, and the squeegee is passed over it in every direction. In about a minute the paper will be seen to stretch on two sides and it may then be removed, the print adhering to the plate. Now tone, fix, and wash. In making prints of large size, the plate might first be gelatinized, but for ordinary sizes this is not necessary. When dry the collodion film adheres perfectly well to the surface of the plate.

If necessary it may be varnished.

In this manner we obtain a reversed print; if we wish it not reversed, recourse

must be had to the double transfer. Sheets of smooth paper are drawn through varnish for making the clichés which are hung up to dry with the aid of heat. This should be done a few days before using.

Instead of placing the print, which comes from the pressure frame, on a glass plate, it is laid on this varnished paper which has been wet with cold water, and the operation is proceeded with as above. The gummed paper having been detached, the print adhering to the varnished paper is placed on a wet plate, the squeegee is again used and the varnished paper removed. To reproduce or multiply a cliché, this diapositive is used as a cliché. By making the transfer twice without using the varnished paper, a direct cliché will be obtained. In using once, either for the diapositive or for the cliché, the double transfer with varnished paper, a reversed cliché will be obtained.

There is a word to say about the composition of the collodio-chloride.

If we have to do with a very brilliant cliché, it is well to add a little more chloride to the collodion; in this manner the character of the negative may be modified. To 100 c.c. (3 fl. oz. 3 dr.) of ordinary collodio-chloride, I add 2 c.c. (32 minims) of a solution of 5 grammes (77 grains) of chloride of lithium in 100 c.c. (3 fl. oz. 3 dr.) of normal collodion. In this way a greater intensity is obtained.

During thirty-five years, I have introduced and spread abroad a great number of processes or modifications of them, but I have never met with so much surprise as I have from practical photographers or amateurs to whom I have shown this little dodge, which with so little trouble can furnish us with such splendid diapositives for projection or enlargement.—*Bulletin Belge.*

[Translated for *The Philadelphia Photographer.*]

## GELATINO-CHLORIDE OF SILVER TRANSPARENT POSITIVES.

BY A. RUTTAT.

IN continuation of what I have already said on this subject, presuming that my readers have good plates, I add a few hints:

Before making any impression, it is first

necessary to inspect the surface of the plate, and to obtain a good result it is indispensable to have plates whose prepared side is smooth and brilliant, similar to the natural surface of glass.

This being the case, the impression in the pressure-frame should be long, more than double the time necessary for obtaining an image on paper. By transparency, the tone of the image, whatever it may be, should be clean and strong, and the back of the plate seen by reflection, should have lost, so to speak, all traces of the image. The opaque portions of the cliché alone should still show some light tints. One of the principal conditions of success, is, therefore, to obtain a vigorous impression. As to what pertains to the remainder of the operation, the preliminary washing after exposure in the pressure-frame is always necessary, but toning requires special precautions. As a result of my experiments it seems to me that in general the time of toning is short, in proportion to the blue color of the print, and long, in proportion to the red color. I tone always in the same way, and with a new bath. About a quarter of an hour before toning, I pour into the dish 30 c.c. (1 fl. oz.) of a solution of acetate of soda at 20 for 500 of water, then 30 c.c. (1 fl. oz.) of a solution of chloride of gold at 1 to 500 of water. This bath is sufficient to tone perfectly twenty projection plates. As far as I have seen, the time of toning is always short. With the plates impressed in indigo, I allow the prints to remain for thirty seconds in the toning bath, then I thoroughly wash by dipping into a dish full of water, and afterwards plunge into the hyposulphite of soda and chrome alum bath already mentioned in my former article. As the impression in red increases I also increase the time of toning—that is to say, I give the violet plates forty seconds and the red sixty. I think it is dangerous to exceed this time, as then the toning bath attacks the print, and we obtain only images that are gray and without vigor. On the other hand, the time of toning should be shortened in the ratio of the vigor of the print. If, on account of an error of judgment, the plate taken from the pressure-frame does not have all the vigor that it was supposed to possess, it is indispensable, in order



to preserve all the light tints, to tone between twenty-five and thirty seconds. Plunged into the fixing bath, all the plates, without distinction, take again a disagreeable brown color, but in drying slowly, after thorough washing, this brown, or red tint, is changed into a magnificent violet tint, similar to that of albumenized paper prints. On account of the small quantity of chloride of silver contained in the film, the fixing is very rapid, and is generally ended in five minutes. Such are the variations that I have remarked in the practice of this process when making use of new plates.—*Bulletin Belge.*

### NOTES ON PHOTOGRAPHY IN GERMANY.

BY W. E. WOODBURY.

INSTANTANEOUS PHOTOGRAPHS BY ANSCHUTZ.—I very recently had the pleasure of seeing some of Ottomar Anschutz's latest instantaneous pictures. Herr Anschutz has recently increased his collection of more than 1300 instantaneous pictures by many new ones. Instantaneous photos of wild boars, wolves, foxes, pigeons, storks, cats, dogs, horses, monkeys, and men will be found among this interesting and instructive collection. These pictures are reproduced by the collotype process, and the whole is sold for ten shillings. This low price has, it has been stated, been fixed by Herr Anschutz in order to awaken the interest of the general public to so important and useful a study. Many German artists are availing themselves of these instantaneous studies. In the series of pictures published by this same photographer, it is quite astonishing to note how many different movements are summed up in the one execution of a leap which to the unaided human eye seems only a single effort. It is also worthy of note what a perfection of muscular movement appears in the shortest possible time.

PRELIMINARY HYPO BATH FOR NEGATIVES.—The question as to whether there are really any advantages to be gained by the use of a preliminary bath, composed of a very weak solution of hyposulphite of soda, before development, is one that has been occupying the attention of many of our

leaders in this country, although I fear very little notice is taken of it in England. In a recent number of the *Photographische Mittheilungen*, Herr Gaedicke publishes some very interesting experiments in this direction. A number of dry plates of the same emulsion of a high degree of sensitiveness were exposed under perfectly similar conditions under a sensitometer, composed of from one to sixteen layers of paper mounted one on the other. These graduated fields were numbered one to sixteen successively. The source of light, distance, and time were similar, so that on all the plates there was an equal influence of light. The development was now varied, in order to discover whether, by one or the other modification, a more extended picture, implying a higher sensitometer number, could be produced. First a plate was developed as usual with oxalate of iron. In order to be quite sure of bringing out the whole image, it was allowed to remain in the developer five minutes, although, according to experience,  $2\frac{1}{2}$  minutes would be quite long enough for the emulsion employed. The extreme legible number when, after fixing, the plate was held toward the northern sky, was No. 11. In experiment three, the plate was previously immersed in a hypo bath 1 to 2000 for twenty seconds, then well rinsed and developed. The picture appeared in about one-seventh of the time; but with longer development a veil was formed. The extreme visible sensitometer number was 11, the same as without a preliminary bath. Therefore, the preliminary bath produced nothing further than the development without it—in other words, the sensitiveness of dry-plates is not enhanced by a preliminary bath of hypo, but, of course, the process of development is materially expedited. Experiment No. 4 was a repetition of experiment 3, with the modification that no rinsing of the plate took place after the immersion in the preliminary bath, so that a portion of the solution still adhered to the film. But the development could not be prolonged, as too strong a veil appeared. The last legible number was 11. From this it will be seen that if such a preliminary bath is to be employed, a thoroughly good rinsing must ensue before development. In

contrast to the foregoing, experiment 5 was a plate developed without a preliminary bath, and to every 10 c.cm. developing-solution, one drop of bromide of potassium 1 to 10 was added. As would be imagined, the development was greatly protracted, and after six minutes only the number 9 was attained. The numbers 10 and 11 were not as yet visible; that shows that in development with bromide of potassium the finest high-light details are not brought out. In continuing his experiments, Herr Gaedicke tried the effect of the addition of bromide of potassium to the developer, and afterward some hypo solution. The effect was that the development was hastened without any formation of a veil. The majority of dark chambers are not renowned for affording a superfluity of space; as in ships, every inch of space must be available, and all unnecessary utensils must be banished. Among these doomed vessels must be reckoned the preliminary bath. Herr Gaedicke made several experiments to determine the relation of hypo and bromide, and found that the proportions 1 to 6 were the most favorable. He recommends the following solution:

Crystallized hyposulphite	
of soda . . . . .	1 gramme.
Bromide of potassium . . . . .	6 grammes.
Water . . . . .	60 "

With this solution he took one drop to every 10 c.cm. of developer, and developed one of the exposed plates. The image appeared in about the same time, and the whole development lasted, perhaps, half the time required with the ordinary oxalate development. The least legible number was 11. The whole image was brought out, but in a much shorter time. The picture was perfectly free from veils. The addition of bromide and hypo is therefore undoubtedly to be preferred to the hypo bath—first, because the veil is avoided; secondly, the troublesome manipulation of the preliminary bath is saved; and, thirdly, because space is saved in the dark room. But, besides being an accelerator of the development, this addition possesses a still greater and more important advantage—*i. e.*, the character it imparts to the nega-

tive. When we develop a negative in the ordinary manner, the strongest lights first make their appearance—in a portrait the linen and the flesh, and lastly, the deeper shadows, such as the marks in black clothing. The development of the latter may last so long that in the meantime the lights which first made their appearance become so thick that in the prints we find no modulation in the flesh, which appears as a white uniform mass without any fine details. By the addition of the solution given, the entire surface develops itself at once; that is to say, the details in the deepest shadows appear almost simultaneously with the strongest lights, only that the shadows soon cease to develop further. The picture looks at first quite weak, but this is soon altered. The high lights refuse to develop further, and the dark parts continue to strengthen until sufficient density is attained. As a means of better controlling the process of development, this simple arrangement should not be wanting in any photographic studio, and should be used with every development when there is no reason to expect an overexposure. For the development of instantaneous photographs, this addition is also to be recommended.—*News.*

[Translated for the Philadelphia Photographer.]

## AN ESSAY ON THE LATENT ACTION OF LIGHT ON SENSITIVE PHOTOGRAPHIC SURFACES.

BY AUGUSTE AND LOUIS LUMIÈRE.

IF we take, by means of dry plates, for example, a series of photographs of a subject with continuous modellings, with times of exposure constantly decreasing, the following facts may be observed: starting from a certain very short time of exposure variable with the lighting of the subject, the sensitiveness of the plates, the rapidity of objectives, etc., the continuity of the images ceases to exist, and it becomes impossible to obtain in the development, the least reduction of the haloid salt of silver used, on all the portions which have not been influenced by the light with an intensity exceeding a fixed limit.

The time of exposure becoming shorter

and shorter, or the lighting weaker and weaker, there is a moment at which nothing but the most luminous points of the subject appear on the plate, and nothing whatever of the rest of the image. Struck with this phenomenon we were led to think that the reason could only be attributed to two causes:

1. Nullity of the action of light on the sensitized substance under a certain minimum value.

2. Want of energy of the developer.

Examining the first point, and in order to verify if the latent image exist or not in the sensitive film, however short and weak the action of the light, we made the following experiments.

A disk was attached to one of the rotary shafts of a clock movement, whose motion, which could be made to vary in certain limits, was maintained uniformly for each experiment by means of an isochronous regulator of Villarceau. This opaque disk was opened according to a sector of which we could modify the angle at will, then a pencil of parallel luminous rays, coming from a source obviously constant, was projected normally to the surface of the disk in such a manner that this last performed the function of a stop. The apparatus being put in motion, every time that the open sector passed before the luminous pencil the rays reached a sensitive plate arranged for the purpose in the camera in which the operation was being conducted. The disk being at rest, its sector opened toward the luminous pencil, we first exposed the half of a gelatino-bromide of silver plate to the action of this last for an exactly measured period of time, three seconds, for example. Then the disk was made to rotate, and the other half of the plate exposed to the intermittent action of light, which now only acted in durations of 1-1000, 1-2000, or 1-4000 of a second, according to the opening of the sector, and these exposures succeeded each other at intervals of 1-10 or 1-30 of a second. The total duration of the operation was calculated so that the sum of the fractional exposures was equal, for each experiment, to three seconds time, during which the first half of the plate had been exposed to the action of the luminous pen-

cil. If, as we had supposed from the first, these excitations of 1-1000, 1-2000, 1-4000 of a second had produced separately no permanent modification in the sensitive film, their sum would have been null, and the reduction of the bromide of silver, under the influence of the developer, would only have shown itself on the half of the plate exposed continuously for the space of three seconds. Now, we have always found that the two impressions were precisely equal.

Repeating the experiment, varying the intensity of the luminous source, the opening of the sector, and the velocity of the disc, for the purpose of weakening, shortening, or removing the fractional exposures, this continuous and intermittent equality of the action manifested itself in all cases.

The diminution of the time of the successive lightings, and the weakening of the intensity of the source were carried far enough for the superposition of twenty-four thousand elementary impressions to produce only in the development but a very feeble trace on the plate. The identity of this trace and of that resulting from a continuous time of exposure equal to the sum of the intermittent exposures, proves, therefore, that each of these twenty-four thousand impressions has determined a modification of the sensitive substance and that the latent action of light persists even in these extreme limits.

We must conclude, therefore, that:

1. However little intense, or little prolonged, the action of the light on the haloid salts of silver, the latent impression is never null.

2. All things being equal, moreover, and in the limits of intensity and time in which we have operated, the effects produced are in proportion to the times of exposure.

3. When the latent image is not developed, the absence of reduction should be attributed to the want of energy of the developer.

—*Moniteur.*

The third meeting of the Chicago Lantern Slide Club was held in the hall of the McINTOSH GALVANIC & FARADIC BATTERY Co. on March 22. The slides shown were contributed by the Cincinnati Club. Others, also, were a series of views of Chicago after the fire.

## BROMIDE OF SILVER GELATINE EMULSION PROCESS.\*

BY WALTER E. WOODBURY.

(Continued from page 179.)

### PREPARATION OF THE PLATES.

#### FILTERING THE EMULSION.

FOR this operation the temperature of the dark-room should stand at least at 20° C. ; therefore it must be heated during the cold weather. The emulsion hung up to drain must be taken out by a horn spoon, laid on a clean piece of blotting paper, or on a clean cloth spread out on a plate, and then transferred into a glass or porcelain basin. This latter is placed in a vessel partly filled with water at about 60°, and there left till the gelatine emulsion is perfectly dissolved. To this end, as well as for keeping the emulsion warm, I use a bath. It consists of a cylindrical zinc vessel with another vessel inserted, in which is a bowl for the emulsion, a measure, and a little basin for the brush used for spreading the emulsion. To one side of the inserted vessel a perforated tube is soldered, in which a 100° thermometer is placed. It has a tight-fitting cover or lid. The water, heated to 60°, is poured into the vessel; the inner vessel, in which the before mentioned utensils are placed, is put in, and the whole is carried into the dark-room. The washed emulsion is then, as already mentioned, brought to the bowl or basin.

To the completely washed emulsion are sometimes added other substances for the purpose of causing the emulsion to set easier or of keeping the plates clear during the development or of facilitating the flow of the emulsion over the glass plates. Dr. Eder† puts to 1 litre of emulsion 3 c. cm. chrome alum solution, 1 to 50, to render the gelatine insoluble, and 1 c. cm. bromide of potassium solution, 1 to 10, to keep the plates free from veils during development. I am accustomed to add, myself, to 100 c. cm. emulsion 5 c. cm. of ordinary pure

alcohol (not absolute) to facilitate the flow over the plates.

All these additions should be well stirred into the emulsion with a glass tube. Before final use the emulsion should be filtered, as it frequently contains impurities, such as bits of wood or strong fibre, etc.

In case the operator has no proper filterer at his disposal, a glass funnel may be used for the purpose, in the neck of which a little pad of purified cotton or of hemp is placed loose. The cotton to be used is the kind known in the trade as "medicated cotton," and is obtainable at every chemist's. The filtered fluid should be caught in a glass vessel. In order to prevent the occurrence of air-bubbles through the falling of the liquid, either the end of the funnel must be sloped and allowed to rest on the bottom of the bowl or, what is perhaps better, the receiving bowl should itself be sloped, the liquid allowed to run gently down the side. Any special arrangement for heating during the filtering is unnecessary, as the operation is so quickly over that the setting of the gelatine is not possible.

The filtering could be even better and more thoroughly done through wash-leather; but the wash-leather must be washed before using in tepid soda solution, and afterward in water, which must be changed many times. The filtering through leather can only be carried out by means of pressure, and for this purpose several kinds of apparatus are in use.

The under-opening of the glass vessel is tied up with damped wash-leather, single or double, the emulsion is poured in, and then by a simple catch a brass tube is fastened hermetically in the upper opening. Then a small India-rubber ball acting as a force pump is set into the top of this brass tube, and the emulsion is forced through the leather. In one or two minutes half a litre can be filtered with care, so that the operator may hold the apparatus in his hand without becoming tired. After using, the apparatus must be carefully cleaned with tepid water, and the leather used thrown away. Toward the completion of the filtration care should be taken to cease the pressure on the India-rubber instantly the last portion of the emulsion has passed through; otherwise air-

\* Translated for the PHILADELPHIA PHOTOGRAPHER from Pizzighelli's Handbuch der Photographie, Band I., 1886.

† Handbook of Photography, vol. x. p. 184.

bubbles form in numbers, which go with the emulsion on to the plates, and there give occasion to transparent spots and points. In filtering, the apparatus should be held in the hand, or placed in the mouth of the bowl and merely supported by the hand.

A filtering apparatus, as employed by David & Skolik, which can easily be put together, is useful. Its constituent parts are as follows: A glass bell with a wide ground mouth, or India-rubber with glass tube, and a double bladder or blower. The plate is fixed on to the arm of an ordinary filter-frame. The other opening of the glass bell is covered with leather, as in Braun's apparatus.

As the leather is liable to be stopped up during filtration, it is better to lay before it a piece of flannel, which will retain all rough particles. A layer of clean hemp may also be interposed between the flannel and the leather. As with every possible care it is difficult to avoid the occurrence of air-bubbles in filtering with the various apparatus described, it is advisable, in order to obtain pure plates, to filter the emulsion once again through a glass funnel. By this second operation we may rely upon obtaining a solution perfectly free from bubbles.

#### COATING THE PLATES.

While the melting and filtering of the emulsion are going on, the operator should be careful in winter to see to the warming of the plates previous to coating. Even in summer this is sometimes necessary, when working in a very cool place.

If the situation be sufficiently warm (20° C.), this will not be necessary for the smaller sizes from 15 to 20 c.m.: it will be sufficient that they have the temperature of the place. With the larger sizes it is always to be preferred, as, if the plates are too cold, the emulsion spreads very badly, sometimes will even set while the coating is going on. The best is, for the plates to have as nearly as possible the same temperature as the emulsion. For the preliminary warming of the plates, I use a warming arrangement of zinc, of somewhat larger base than the size of one or two plates, which is filled with warm water at about 60° C. I stand this warming

apparatus on the cooling table, and, before coating, lay one or two plates on it; as one is taken away I put another in its place from the plate chest. The time occupied in preparing one or two is just sufficient to warm those next for use.

Instead of warm water, soda can be employed for filling the warming apparatus, as is done by Dr. Lorent. If a well soldered warming apparatus be placed in hot water until its contents are melted, the contents will retain their heat for a long time, say from six to eight hours, particularly if enclosed in a bad heat conductor. For example, hyposulphite of soda melts at 56° C., crystallized washing soda at 34° C., and Glauber's salts at 33° C. Dr. Lorent employed hyposulphite of soda, which he closed up with capsules; he placed the case or box for a long time in boiling water, and as soon as the contents were liquid, he bored through the capsule and poured the whole contents into the warming apparatus, which he then soldered up.

Before coating, every plate should be brushed over with a clean kept camel's-hair brush, in order to remove all dust or remains of cleaning or polishing powder.

The quantity of emulsion necessary for the size of the plates (0.4 c. cm. per 1 square cm. plate surface\*) is measured out in the measure, and then carefully and slowly poured on to the middle of the plate, which is held in the hand by one corner only. The mouth of the measure must be kept as near as possible to the plate, so that the fluid does not fall from a height and occasion air-bubbles. By gently inclining the plate, and, if necessary, by the aid from a marten's hair brush fixed in a quill—not in metal—the emulsion can be completely spread over the plate to the very edge. In order to let

\* There are, therefore, required quantities of emulsion according to the following calculated scale:

On one plate,	9 x 12 cm.	: 4.5 c. cm. emulsion.
" "	12 x 16 "	: 8.0 " "
" "	13 x 18 "	: 9.5 " "
" "	13 x 21 "	: 11.0 " "
" "	18 x 24 "	: 17.5 " "
" "	24 x 30 "	: 29.0 " "
" "	30 x 40 "	: 48.0 " "

the emulsion set or congeal in a layer of equal thickness, the plate should be laid directly after coating on a truly horizontally fixed piece of thick plate-glass, as used for printing frames, or a marble slab.

The coating of plates while held in the hand alone, is only practicable with the smaller sizes, and needs some practice, which however, is soon attained. With the larger sizes, the plates must have a support, for which the arrangement used by Dr. A. von Lorent suits remarkably well. It offers besides, this advantage, that the plate can be prepared without its being necessary to touch it with the fingers. The apparatus consists of three strong, smooth boards (whose sizes accommodate themselves to the plate), which are connected at the right corner. To the middle board, which rests on the table, the level screws are fastened; the two side parts are planed quite level above, and brought so close to each other that the glass to be prepared overlaps them by a few millimetres, so that it can afterwards be laid hold of with the pincers. On the outer sides of the perpendicular boards are fixed 2 to 3 mm. under their upper edges, two strips of brass 3 cm. wide; these serve to guide and support the pincers; if the two legs of the pincers be allowed to rest on the edges of the strips of brass, and to close by their own elasticity, the glass can be quite safely and certainly laid hold of for removal in the weakest light. The pneumatic plate-holder can be applied to carry away the glasses during all the operations, and it is of value in equalizing the gelatine by inclining this and that way (in different directions), and if the holder will not loose its hold without a little shaking, still the gelatine will not run off from a horizontal lying surface.

The pincers consist of two equal sized and heavy triangular legs of brass, being at the bottom about the same width as the glass plates, 1 to 2 mm. in the corner, being bent inward, and connected at the top by means of an elastic spring. If the finger is put through the half circle or ring formed by this spring, the glass plates as they are carried will always preserve their horizontal position. To fix perfectly horizontally the setting plates on which

the plates, after coating, are laid, a spirit-level and a levelling plane are used. The setting of the emulsion proceeds rapidly, and should not last more than fifteen or twenty minutes. If the operator has a large-sized setting plate, for example, to hold eight plates, the first ought to be ready by the time he places the last.

In working in the summer in a situation not very cool, the plates must be cooled by ice; to accelerate the setting, pieces of ice should be laid on the setting-plate, removed before the coated plates are laid on. The ice-chest constructed by Von Peener is very suitable for this purpose. It is made of strong sheet zinc, lined inside with iron; the ice is put in through an opening in the side. On the upper and perfectly level plate the emulsion plates are laid. The whole chest must, of course, be adjusted perfectly horizontal.

(To be continued.)

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TO PREVENT PRINTS FROM WARPING.—M. Paul Roi suggests using the following solution: alcohol, 4 parts; glycerine, 3 parts; water, 1 part. The prints are cut the proper size and steeped in this solution, then drained, in the form of a roll, and sponged with bibulous paper. They may now be stuck with starch paste and allowed to dry freely in the air. It is possible to straighten out old prints by applying this solution with a brush.—*Progrès Photographique*.

ON THE USE OF WATER TO REMOVE ALL TRACES OF HYPOSULPHITE IN PRINTS ON ALBUMINIZED PAPER.—We know that in order to obtain a positive print free from hyposulphite of soda, it is necessary to subject the paper to a number of washings and to renew frequently the water. This undoubtedly is the best method, but it has the fault of taking up considerable time. To reach the same result, it suffices to plunge the sheet, after fixing, into hot water, which rapidly dissolves the last traces of hyposulphite. After two or three washings the print is allowed to dry, and it may then be kept an indefinite space of time without fading.—*Progrès Photographique*.

DALLMEYER'S STANDARD OF COMPARATIVE EXPOSURES,

Showing the relative Rapidities of the several Stops for different Lenses. [See articles from *The Photographic News* for Sept. 24, 1886; page 209 PHILADELPHIA PHOTOGRAPHER.]

LENS.						LENS.					
Old Notation of Stop.	Diameter of Stop.	Approximate Intensity Ratio.	Relative Rapidity.	Dallmeyer's Standard.	Photographic Society's Standard.	Old Notation of Stop.	Diameter of Stop.	Approximate Intensity Ratio.	Relative Rapidity.	Dallmeyer's Standard.	Photographic Society's Standard.
<b>2 C, focus 6"</b>						<b>4 B, focus 14"</b>					
0	2.45	1-2.45	6	.6	.375	0	4.221	1- 3.31	11	1.1	.6875
x	2.	1-3.	9	.9	.5625	x	3.446	1- 4.06	16.5	1.65	1.0315
2	1.734	1-3.46	12	1.2	.75	2	2.985	1- 4.69	22	2.2	1.375
x	1.415	1-4.24	18	1.8	1.125	x	2.437	1- 5.74	33	3.3	2.0625
3	1.227	1-4.89	24	2.4	1.5	3	2.109	1- 6.63	44	4.4	2.75
4	.866	1-6.93	48	4.8	3.	4	1.492	1- 9.38	88	8.8	5.5
5	.61	1-9.8	96	9.6	6.	5	1.01	1-13.2	176	17.6	11
						6	.744	1-18.7	352	35.2	22
<b>3 C, focus 8"</b>						<b>No. 1, Recti-linear Portrait, focus 6"</b>					
0	3.21	1- 2.49	6.2	.62	.3875		1.714	1- 3.5	12.25	1.225	.765625
x	2.624	1- 3.05	9.3	.93	.58125		1.4	1- 4.28	18.375	1.8375	1.1484375
2	2.261	1- 3.52	12.4	1.24	.775		1.2	1- 5.	25	2.5	1.5625
x	1.855	1- 4.31	18.6	1.86	1.1625		.979	1- 6.12	37.5	3.75	2.34375
3	1.6	1- 4.98	24.8	2.48	1.55		.847	1- 7.07	50	5	3.125
4	1.136	1- 7.04	49.6	4.96	3.1		.6	1-10.	100	10	6.25
5	.803	1- 9.96	99.2	9.92	6.2		.424	1-14.1	200	20	12.5
6	.563	1-14.1	198.4	19.84	12.4						
<b>1 B, focus 6"</b>						<b>No. 2, Recti-linear Portrait, focus 8 1/2"</b>					
0	1.697	1- 3.53	12.5	1.25	.78125		2.507	1- 3.39	11.5	1.15	.71875
x	1.386	1- 4.33	18.75	1.875	1.171875		2.047	1- 4.15	17.25	1.725	1.078125
2	1.2	1- 5	25	2.5	1.5625		1.77	1- 4.79	23	2.3	1.4375
x	.98	1- 6.12	37.5	3.75	2.34375		1.447	1- 5.87	34.5	3.45	2.15625
3	.85	1- 7.07	50	5	3.125		1.342	1- 6.78	46	4.6	2.875
4	.6	1-10.	100	10	6.25		.886	1- 9.59	92	9.2	5.75
5	.423	1-14.2	200	20	12.5		.627	1-13.5	184	18.4	11.5
<b>1 B [long], focus 6 1/4"</b>						<b>A, focus 10"</b>					
0	1.7	1- 3.74	14	1.4	.875	0	2.5	1- 4.	16	1.6	1
x	1.4	1- 4.58	21	2.1	1.3125	x	2.045	1- 4.89	24	2.4	1.5
2	1.21	1- 5.29	28	2.8	1.75	x	1.766	1- 5.65	32	3.2	2.
x	.987	1- 6.48	42	4.2	2.625	2	1.444	1- 6.93	48	4.8	3.
3	.855	1- 7.48	56	5.6	3.5	3	1.25	1- 8.	64	6.4	4
4	.605	1-10.6	112	11.2	7.	4	.884	1-11.3	128	12.8	8
5	.428	1-14.9	224	22.4	14.	5	.625	1-16.	256	25.6	16
<b>2 B and 2 B Patent, focus 8 1/4"</b>						<b>2 A, focus 13 1/2"</b>					
0	2.49	1- 3.31	11	1.1	.6875	0	3.227	1- 4.18	17.5	1.75	1.09375
x	2.031	1- 4.06	16.5	1.65	1.0315	x	2.635	1- 5.12	26.25	2.625	1.640625
2	1.76	1- 4.69	22	2.2	1.375	2	2.228	1- 5.91	35	3.5	2.1875
x	1.436	1- 5.74	33	3.3	2.0625	x	1.862	1- 7.24	52.5	5.25	3.28125
3	1.242	1- 6.63	44	4.4	2.75	3	1.614	1- 8.36	70	7	4.375
4	.88	1- 9.38	88	8.8	5.5	4	1.141	1-11.8	140	14	8.75
5	.621	1-13.2	176	17.6	11.	5	.807	1-16.7	280	28	17.5
						6	.57	1-23.6	560	56	35
<b>3 B, focus 10 1/2"</b>						<b>3 A, focus 16"</b>					
0	3.24	1- 3.24	10.5	1.05	.65625	0	3.647	1- 4.36	19	1.9	1.1875
x	2.646	1- 3.97	15.75	1.575	.984375	x	3.	1- 5.33	28.5	2.85	1.78125
2	2.18	1- 4.58	21	2.1	1.3125	2	2.6	1- 6.16	38	3.8	2.375
x	1.871	1- 5.61	31.5	3.15	1.96875	3	1.835	1- 8.71	76	7.6	4.75
3	1.466	1- 6.48	42	4.2	2.625	4	1.3	1-12.3	152	15.2	9.5
4	1.146	1- 9.16	84	8.4	5.25	5	.918	1-17.4	304	30.4	19
5	.81	1-12.9	168	16.8	10.5	6	.659	1-24.6	608	60.8	38
6	5.73	1-18.3	336	33.6	21.						

LENS.	Old Notation of Stop.	Diameter of Stop.	Approximate Intensity Ratio.	Relative Rapidity.	Dallmeyer's Standard.	Photographic Society's Standard.
4 A, focus 16"	0	4.13	1-4.36	19	1.9	1.875
	x	3.338	1-5.34	28.5	2.85	1.78125
	2	2.92	1-6.16	38	3.8	2.375
	x	2.39	1-7.55	57	5.7	3.5625
	3	2.064	1-8.71	76	7.6	4.75
	4	1.46	1-12.3	152	15.2	9.5
	5	1.0324	1-17.4	304	30.4	19.
6	.73	1-24.6	608	60.8	38.	
5 A, focus 21"	0	4.477	1-4.69	22	2.2	1.375
	x	3.656	1-5.74	33	3.3	2.0625
	2	3.166	1-6.63	44	4.4	2.75
	x2	2.585	1-8.12	66	6.6	4.125
	3	2.238	1-9.38	88	8.8	5.5
	4	1.583	1-13.2	176	17.6	11.
	5	1.12	1-18.7	352	35.2	22.
6 A, focus 28"	0	5.39	1-5.19	27	2.7	1.6875
	x2	4.4	1-6.36	40.5	4.05	2.53125
	2	3.8	1-7.34	54	5.4	3.375
	x3	3.1	1-9.	81	8.1	5.0625
	3	2.694	1-10.4	108	10.8	6.75
	x4	2.2	1-12.7	162	16.2	10.125
	4	1.905	1-14.7	216	21.6	13.5
5	1.347	1-20.8	432	43.2	27.	
3 D, focus 12 1/2"	0	1.896	1-6.59	43.5	4.35	2.71875
	x	1.566	1-8.14	66.25	6.625	4.140625
	2	1.34	1-9.32	87	8.7	5.4375
	3	.947	1-13.2	174	17.4	10.875
	4	.67	1-18.6	348	34.8	21.75
	5	.474	1-26.4	696	69.6	43.5
	6	.335	1-37.3	1392	139.2	87.
4 D, focus 17"	0	2.404	1-7.07	50	5	3.125
	x	1.963	1-8.66	75	7.5	4.6875
	2	1.7	1-10.	100	10	6.25
	3	1.202	1-14.1	200	20	12.5
	4	.85	1-20.	400	40	25.
	5	.601	1-28.3	800	80	50.
	6	.425	1-40.	1600	160	100.
5 D, focus 19"	0	3.004	1-6.32	40	4	2.5
	x	2.453	1-7.74	60	6	3.75
	2	2.124	1-8.94	80	8	5.
	3	1.5	1-12.6	160	16	10.
	4	1.062	1-17.9	320	32	20.
	5	.751	1-25.3	640	64	40.
	6	.531	1-35.7	1280	128	80.
6 D, focus 24"	0	3.578	1-6.71	45	4.5	2.8125
	x	2.92	1-8.21	67.5	6.75	4.21875
	2	2.53	1-9.48	90	9	5.625
	3	1.79	1-13.4	180	18	11.25
	4	1.264	1-18.9	360	36	22.5
	5	.895	1-26.8	720	72	45.
	6	.633	1-37.9	1440	144	90.
7 D, focus 30 1/2"	0	4.547	1-6.71	45	4.5	2.8125
	x1	3.711	1-8.21	67.5	6.75	4.21875
	2	3.215	1-9.48	90	9	5.625
	x2	2.624	1-11.6	135	13.5	8.4375
	3	2.273	1-13.4	180	18	11.25
	4	1.608	1-18.9	360	36	22.5
	5	1.137	1-26.8	720	72	45.
6	.803	1-37.9	1440	144	90.	
8 D, focus 37"	0	5.3	1-7.	49	4.9	3.0625
	x2	4.316	1-8.57	73.5	7.35	4.59375
	2	3.737	1-9.9	98	9.8	6.125
	x3	3.051	1-12.1	147	14.7	9.1875
	3	2.643	1-14.	196	19.6	12.25
	x4	2.158	1-17.1	294	29.4	18.375
	4	1.87	1-19.8	392	39.2	24.5
5	1.321	1-28.	784	78.4	49.	
Patent Stereographic, focus 6"	0	1.179	1-4.24	18	1.8	1.125
	x	.962	1-5.2	27	2.7	1.6875
	2	.83	1-6.	36	3.6	2.25
	x2	.68	1-7.34	54	5.4	3.375
	3	.59	1-8.48	72	7.2	4.5
	4	.416	1-12.	144	14.4	9.
	5	.294	1-16.9	288	28.8	18.
4 1/2 x 3 1/4 Rapid Rectilinear focus 4"	0	.5	1-7.	49	4.9	3.0625
	x	.466	1-8.57	73.5	7.35	4.59375
	2	.404	1-9.9	98	9.8	6.125
	3	.285	1-14.	196	19.6	12.25
	4	.202	1-19.8	392	39.2	24.5
	5	.143	1-28.	784	78.4	49.
	5 x 4 Rapid Rectilinear focus 6"	0	.717	1-8.36	70	7
x		.586	1-10.2	105	10.5	6.5625
2		.507	1-11.8	140	14	8.75
3		.352	1-16.7	280	28	17.5
4		.254	1-23.6	560	56	35.
5		.18	1-33.4	1120	112	70.
6 x 5 Rapid Rectilinear focus 8 1/4"		0	.922	1-8.94	80	8
	x	.753	1-10.9	120	12	7.5
	2	.652	1-12.6	160	16	10.
	3	.461	1-17.9	320	32	20.
	4	.322	1-25.3	640	64	40.
	5	.23	1-35.7	1280	128	80.
	8 1/2 x 6 1/2 Rapid Rectilinear focus 11"	0	1.23	1-8.9	80	8
x		1.004	1-10.9	120	12	7.5
2		.87	1-12.6	160	16	10.
3		.603	1-17.9	320	32	20.
4		.435	1-25.3	640	64	40.
5		.307	1-35.7	1280	128	80.
10 x 8 Rapid Rectilinear focus 13"		0	1.612	1-8.06	65	6.5
	x	1.315	1-9.87	97.5	9.75	6.09375
	2	1.14	1-11.4	130	13	8.125
	3	.806	1-16.1	260	26	16.25
	4	.57	1-22.8	520	52	32.5
	5	.4	1-32.2	1040	104	65.



LENS.	Old Notation of Stop.		Approximate Intensity Ratio.	Relative Rapidity.	Dallmeyer's Standard.	Photographic Society's Standard.
	Diameter of Stop.					
12 × 10, Rapid Rectilinear focus 16"	0	1.98	1-8.06	65	6.5	4.0625
	x	1.62	1-9.87	97.5	9.75	6.09375
	2	1.4	1-11.4	130	13	8.125
	3	.992	1-16.1	260	26	16.25
	4	.7	1-22.8	520	52	32.5
	5	.496	1-32.2	1040	104	65.
13 × 11, Rapid Rectilinear focus 17 1/2"	0	1.957	1-8.94	80	8	5.
	x	1.6	1-10.9	120	12	7.5
	2	1.385	1-12.6	160	16	10.
	3	.98	1-17.8	320	32	20.
	4	.692	1-25.2	640	64	40.
	5	.49	1-35.7	1280	128	80.
6	.346	1-50.5	2560	256	160.	
15 × 12, Rapid Rectilinear focus 19 1/2"	0	2.33	1-8.36	70	7	4.375
	x	1.903	1-10.2	105	10.5	6.5625
	2	1.606	1-11.8	140	14	8.75
	3	1.165	1-16.7	280	28	17.5
	4	.824	1-23.6	560	56	35.
	5	.58	1-33.4	1120	112	70.
18 × 16, Rapid Rectilinear focus 24"	0	2.867	1-8.36	70	7	4.375
	x	2.342	1-10.2	105	10.5	6.5625
	2	2.028	1-11.8	140	14	8.75
	3	1.434	1-16.7	280	28	17.5
	4	1.014	1-23.6	560	56	35.
	5	.717	1-33.4	1120	112	70.
22 × 20, Rapid Rectilinear focus 30"	0	3.586	1-8.36	70	7	4.375
	x	2.927	1-10.2	105	10.5	6.5625
	2	2.535	1-11.8	140	14	8.75
	3	1.793	1-16.7	280	28	17.5
	4	1.268	1-23.6	560	56	35.
	5	.894	1-33.4	1120	112	70.
6	.634	1-47.3	2240	224	140.	
25 × 21, Rapid Rectilinear focus 33"	0	3.69	1-8.94	80	8	5.
	x	3.013	1-10.9	120	12	7.5
	2	2.608	1-12.6	160	16	10.
	3	1.845	1-17.8	320	32	20.
	4	1.304	1-25.3	640	64	40.
	5	.922	1-35.7	1280	128	80.
6	.652	1-50.6	2560	256	160.	
No. 1, Quick Acting Stereo, focus 4 1/2"	10	.45	1-10.	100	10	6.25
	x	.375	1-12.2	150	15	9.375
	2	.311	1-14.1	200	20	12.5
	3	.225	1-20.	400	40	25.
No. 2, Quick Acting Stereo, focus 6"	10	.6	1-10.	100	10	6.25
	x	.49	1-12.2	150	15	9.375
	2	.424	1-14.1	200	20	12.5
	3	.3	1-20.	400	40	25.

LENS.	Old Notation of Stop.		Approximate Intensity Ratio.	Relative Rapidity.	Dallmeyer's Standard.	Photographic Society's Standard.	
	Diameter of Stop.						
2" Rectilinear focus 2 1/4"	12	.19	1-11.8	140	14	8.75	
	x	.155	1-14.5	210	21	13.125	
	2	.134	1-16.7	280	28	17.5	
	3	.095	1-23.6	560	56	35.	
	4	.067	1-33.4	1120	112	70.	
	5	.047	1-47.3	2240	224	140.	
Rectilinear Stereo, focus 3"	10	.3	1-10.	100	10	6.25	
	x	.245	1-12.2	150	15	9.375	
	2	.212	1-14.1	200	20	12.5	
	3	.15	1-20.	400	40	25.	
	4	.106	1-28.2	800	80	50.	
No. 1, Rapid Landscape, focus 9"		.76	1-11.8	140	14	8.75	
		.621	1-14.5	210	21	13.125	
		.538	1-16.7	280	28	17.5	
		.44	1-20.5	420	42	26.25	
		.31	1-29.	840	84	52.5	
		.22	1-41.	1680	168	105.	
No. 2, Rapid Landscape, focus 12"		.106	1-11.8	140	14	8.75	
		.828	1-14.5	210	21	13.125	
		.712	1-16.7	280	28	17.5	
		.586	1-20.5	420	42	26.25	
		.414	1-29.	840	84	52.5	
		.293	1-41.	1680	168	105.	
No. 3, Rapid Landscape, focus 15"		.207	1-11.8	140	14	8.75	
		1.016	1-14.5	210	21	13.125	
		.896	1-16.7	280	28	17.5	
		.732	1-20.5	420	42	26.25	
		.518	1-29.	840	84	52.5	
		.366	1-41.	1680	168	105.	
No. 4, Rapid Landscape, focus 18"		.259	1-11.8	140	14	8.75	
		1.034	1-14.5	210	21	13.125	
		.896	1-16.7	280	28	17.5	
		.732	1-20.5	420	42	26.25	
		.518	1-29.	840	84	52.5	
		.366	1-41.	1680	168	105.	
No. 5, Rapid Landscape, focus 22"		.152	1-11.8	140	14	8.75	
		1.24	1-14.49	210	21	13.125	
		1.057	1-16.7	280	28	17.5	
		.878	1-20.5	420	42	26.25	
		.621	1-29.	840	84	52.5	
		.439	1-41.	1680	168	105.	
No. 1, Quick Acting Stereo, focus 4 1/2"	10	.45	1-10.	100	10	6.25	
	x	.375	1-12.2	150	15	9.375	
	2	.311	1-14.1	200	20	12.5	
	3	.225	1-20.	400	40	25.	
	No. 2, Quick Acting Stereo, focus 6"	10	.6	1-10.	100	10	6.25
		x	.49	1-12.2	150	15	9.375
2		.424	1-14.1	200	20	12.5	
3		.3	1-20.	400	40	25.	

LEN'S.	Old Notation of Stop.	Diameter of Stop.	Approximate Intensity Ratio.	Relative Rapidity.	Dallmeyer's Standard.	Photographic Society's Standard.	LEN'S.	Old Notation of Stop.	Diameter of Stop.	Approximate Intensity Ratio.	Relative Rapidity.	Dallmeyer's Standard.	Photographic Society's Standard.	
No. 6, Rapid Landscape, focus 25'		2.112	1-11.8	140	14	8.75	No. 1a, Wide Angle Landscape, focus 5 1/4"	13	.408	1-18.	170	17	10.625	
		1.725	1-14.5	210	21	13.125		x	.329	1-15.9	255	25.5	15.9875	
		1.494	1-16.7	280	28	17.5		2	.285	1-18.4	340	34	21.25	
		1.22	1-20.5	420	42	26.25		3	.201	1-27.	680	68	42.5	
		.863	1-29.	840	84	52.5		x	.1644	1-31.9	1020	102	63.75	
		.61	1-41.	1680	168	105.								
		.431	1-57.9	3360	336	210.								
No. 7, Rapid Landscape, focus 30'		2.535	1-11.8	140	14	8.75	No. 1, Wide Angle Landscape, focus 7"	15	.46	1-15.	225	22.5	14.0625	
		2.07	1-14.5	210	21	13.125		2	.33	1-21.2	450	45	28.125	
		1.792	1-16.7	280	28	17.5		x	.27	1-26.	675	67.5	42.1875	
		1.464	1-20.5	420	42	26.25		3	.23	1-30.	900	90	56.25	
		1.351	1-29.	840	84	52.5		x	.19	1-36.7	1350	135	112.5	
		.732	1-41.	1680	168	105.								
		.516	1-57.9	3360	336	210.								
No. 1aa, Wide Angle Rectilinear, focus 4"	15	.306	1-13.	170	17	10.625	No. 2, Wide Angle Landscape, focus 8 1/2"	15	.56	1-15.	225	22.5	14.0625	
	x	.192	1-15.9	255	25.5	15.9875		2	.4007	1-21.2	450	45	28.125	
	2	.217	1-18.4	340	34	21.25		x	.327	1-26.	675	67.5	42.1875	
	3	.153	1-27.	680	68	42.5		3	.283	1-30.	900	90	56.25	
No. 1a, Wide Angle Rectilinear, focus 5 1/4"	4	.108	1-36.8	1360	136	85.	x	.231	1-36.7	1350	135	112.5		
	15	.33	1-15.	225	22.5	14.0625	No. 3, Wide Angle Landscape, focus 10"	15	.6	1-15.	225	22.5	14.0625	
	2	.248	1-21.2	450	45	28.125		2	.471	1-21.2	450	45	28.125	
	3	.175	1-30.	900	90	56.25		x	.385	1-26.	675	67.5	42.1875	
x	.143	1-36.7	1350	135	84.375	3		.33	1-30.	900	90	56.25		
No. 1, Wide Angle Rectilinear, focus 7"	4	.124	1-42.4	1800	180	112.5	x	.272	1-36.7	1350	135	112.5		
	15	.46	1-15.	225	22.5	14.0625	No. 4, Wide Angle Landscape, focus 12"	15	.8	1-15.	225	22.5	14.0625	
	2	.33	1-21.2	450	45	28.125		2	.57	1-21.2	450	45	28.125	
	3	.23	1-30.	900	90	56.25		x	.462	1-26.	675	67.5	42.1875	
x	.19	1-36.7	1350	135	84.375	3		.4	1-30.	900	90	56.25		
No. 2, Wide Angle Rectilinear, focus 8 1/2"	4	.165	1-42.4	1800	180	112.5	x	.327	1-36.7	1350	135	112.5		
	15	.56	1-15.	225	22.5	14.0625	No. 5, Wide Angle Landscape, focus 15"	20	.75	1-20.	400	40	25.	
	x	.463	1-18.3	337.5	33.75	21.09375		x	.612	1-24.5	600	60	37.5	
	2	2.4007	1-21.2	450	45	28.125		2	.53	1-28.3	800	80	50.	
3	.283	1-30.	900	90	56.25	3		.375	1-40.	1600	160	100.		
No. 3, Wide Angle Rectilinear, focus 13"	4	2.003	1-42.4	1800	180	112.5	No. 6, Wide Angle Landscape, focus 18"	20	.9	1-20.	400	40	25.	
	15	.763	1-17.	290	29	18.125		x	.735	1-24.5	600	60	37.5	
	2	.623	1-20.8	435	43.5	27.1875		2	.636	1-28.3	800	80	50.	
	x	.54	1-24.1	580	58	36.25		3	.45	1-40.	1600	160	100.	
No. 4, Wide Angle Rectilinear, focus 15 1/2"	3	.382	1-34.1	1160	116	72.5	x	.367	1-49.	2400	240	150.		
	4	.27	1-48.1	2320	232	145.	No. 7, Wide Angle Landscape, focus 22"	20	1.1	1-20.	400	40	25.	
	15	.91	1-17.	290	29	18.125		x	.9	1-24.5	600	60	37.5	
	2	.644	1-24.1	580	58	36.25		2	.777	1-28.3	800	80	50.	
3	.455	1-34.1	1160	116	72.5	3		.55	1-40.	1600	160	100.		
No. 5, Wide Angle Rectilinear, focus 19"	4	.316	1-48.1	2320	232	145.	No. 8, Wide Angle Landscape, focus 25"	20	1.25	1-20.	400	40	25.	
	15	1.1	1-15.	225	22.5	14.0625		x	1.024	1-24.5	600	60	37.5	
	2	.778	1-21.2	450	45	28.125		x	.88	1-28.3	800	80	50.	
	3	.55	1-30.	900	90	56.25		3	.625	1-40.	1600	160	100.	
No. 6, Wide Angle Rectilinear, focus 19"	4	.389	1-42.4	1800	180	112.5	x	.51	1-49.	2400	240	150.		
	5	.275	1-60.	3600	360	225.								

**A SUGGESTION FOR AN ALTERATION OF THE PHOTOGRAPHIC SOCIETY'S "STANDARD."**

BY THOMAS R. DALLMEYER.

WHEN the Waterhouse diaphragms were universally adopted by opticians as a necessary and most useful adjunct to photographic lenses, the apertures of the "set of stops" supplied with each were so arranged, that the photographer who employed them—whether he understood the meaning of "intensity" or not—should have no difficulty in hitting upon the correct exposure with any particular stop, when the exact exposure with one was known. Generally speaking, they were numbered 1, 2, 3, 4, etc., and so arranged that, counting from the largest to the next size smaller, the time of exposure would be about doubled. In my lenses, intermediated stops are supplied that require only half as long again as the preceding larger stop. Nor, indeed, is the present system different, except in the notation, or stamping the diaphragms as a guide to exposure.

The old system was deemed adequate when only one lens was employed, and when, more, an ordinary operator, knowing the ratio of aperture to focus or "intensity" his various lenses, could, having determined the exposure for one, easily calculate the others. This, of course, remains so still; but the

introduction of a "standard" facilitates the comparison. In the recent additions made to the pamphlet "On the Choice and Use of Photographic Lenses," I have given the comparative exposures of all my view lenses.

That the Photographic Society's "standard" has facilitated comparative exposures is undoubted; but it appears to me that the arbitrary "standard" adopted—viz., intensity  $\frac{1}{4}$ —is an unhappy one, and, moreover, is primarily unintelligible.

As far as I understand, it is adopted as a kind of "mean" that will produce convenient numbers—neither too small with rapid exposures, nor too great with long exposures. I can see no other object in it, but am unaware of the reasons that led to such a choice.

The determination of exposure generally (leaving out of the question differences in the number of reflecting surfaces, thickness, near objects, etc.) depends on the ratio of the controlling aperture to focus, or "intensity." Should not, then, the "standard" adopted have some intelligible relation to "intensity?"

I propose to adopt as a "standard"  $\frac{1}{\sqrt{10}}$ .

The result is that the "standard" numbers become a factor (in fact, identical, except in the position of the decimal point) of the squares of the denominators of the fraction expressing "intensity," and the system is a decimal one. Thus—

Proposed New standard =  $\frac{1}{\sqrt{10}}$  and  $(\frac{1}{\sqrt{10}})^2 = \frac{1}{10}$  division = 10.

P. S. standard =  $\frac{1}{4}$  and  $(\frac{1}{4})^2 = \frac{1}{16}$  division = 16.

For example—

	Intensity	Relative Exposures	Proposed new Standard	P. S. Standard.
	$\frac{1}{4}$ . . . . .	$1^2 = 1 \div 10$	$= .1$	$= .0625$
	" . . . . . $\frac{1}{2}$	$2^2 = 4 \div 10$	$= .4$	$= .25$
	" . . . . . $\frac{1}{3}$	$3^2 = 9 \div 10$	$= .7$	$= .5625$
Standard	" . . . . . $\frac{1}{\sqrt{10}}$	$(\sqrt{10})^2 = 10 \div 10$	$= 1.$	$= .625$
	" . . . . . $\frac{1}{4}$	$4^2 = 16 \div 10$	$= 1.6$	$= 1.$
	" . . . . . $\frac{1}{5}$	$5^2 = 25 \div 10$	$= 2.5$	$= 1.5625$

and so on.

Or take, for example, a lens with its own set of diaphragms, as at present in use—say a 12 by 10 rapid rectilinear, focus 16 ins.

Old Notation.	Diameter of Stop.	Intensity.	Square of Denominators.	Relative Rapidity.	Proposed New Standard.	P. S. Standard.
No. 0	1.7	$\frac{1}{8}$	$8^2$	64	6.4	4.
No. x	1.4	$\frac{1}{11}$	$11^2$	121	12.1	7.56
No. 2	1.2	$\frac{1}{13}$	$13^2$	169	15.9	10.56
No. 3	.8	$\frac{1}{19}$	$19^2$	361	36.1	22.56
No. 4	.6	$\frac{1}{25}$	$25^2$	676	67.6	42.25
No. 5	.4	$\frac{1}{30}$	$70^2$	16000	160.	100.

The objection, if any be found, appears trivial in that the numbers are slightly greater than the P. S. system, and its advantages are evident.

I dare hope to receive the Photographic Society's support, as well as the coöperation of other opticians.

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### TO MOUNTAINEER PHOTOGRAPHERS.

IN accordance with a bequest of the late Uriah G. Boyden, it is proposed to establish an observatory for astronomical research "at such an elevation as to be free, so far as practicable, from the impediments to accurate observations which occur in the observatories now existing, owing to atmospheric influences," under the auspices of the Harvard Observatory. To this end, information concerning localities likely to be suitable for such an observatory is much desired. For the permanent station to be eventually occupied, it is probable that a very great altitude will be advisable. Ease of access is important, to permit the necessary instruments and supplies to be transported. The climate must be such that the station can be occupied at all seasons of the year. A location in the southern hemisphere will be preferable for various reasons. The southern stars invisible in Europe and the United States have been less observed than the northern stars, and by the aid of a southern station the investigations undertaken at Cambridge can be extended upon a uniform system to all parts of the sky.

Detailed information is desired on the following points relating to any place which seems likely to fulfil the above conditions:

1. Latitude and longitude. Distance and direction from some town, or other well-known point. Height, and how determined.

2. Peak, pass, or table land. Character of surface: ledge, broken rock, gravel, or covered with trees, shrubs, or grass. Prevalence of snow in summer, and period during which the depth of snow in winter might obstruct the paths of access, or occasion other inconvenience or damage. Proximity of wood for fuel, and of water.

3. Means of access, distance from and

height above the nearest railroad station, wagon road, bridle-path, or foot-path. Time of ascent and descent. Nearest post-office and telegraph station, and their distances from the proposed station. Nearest point of road kept open in winter.

4. Observation of the rainfall at different seasons of the year. Proportion of the sky covered with clouds at different hours and seasons. These observations are desired at sunset, sunrise, and late in the evening. Such observations may also be made of a distant mountain peak, confining the evening observations to moonlight nights. Observations of the barometer and thermometer are also desired. Information is wanted regarding the prevalence of very high winds; the presence of dust, haze, or the smoke from forest fires, rendering distant points invisible; and all other meteorological phenomena affecting the value of the station for astronomical purposes. If there is a rainy or cloudy season, its duration; also the regular recurrence of clouds, thunderstorms, or wind, at any given hour of the day.

5. Sketches or photographs of the proposed location, and of points along the road; also of the view.

Some of our friends have without doubt acquired information which would be valuable upon the above subjects, in some locality. We would bespeak their interest, and ask them to send them to the Harvard Observatory, Cambridge, Massachusetts.

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### AN APRIL ANSWER.

*(The Century Bric-a-Brac.)*

I asked her for her photograph;  
She answered, with a lightsome laugh,  
"I'll send you one on Friday week."  
Emboldened by her gracious mien  
(For I am young and somewhat green),  
My ardor spurred me on to speak.

(But, gracious! means I find are used  
To leave a lover quite confused)  
She smiled and whispered, "Can't you guess?  
My picture shall my answer give."  
To-day she sent her negative,  
Marked "April First." Does that mean "yes?"

ANNA M. PRATT.

**RAMBLING REMARKS.**

PHOTOGRAPHERS are often troubled with dew collecting on their negatives in cold days, especially when the rooms are being warmed. I have myself lost valuable negatives from the action of moisture on them. City men, who generally keep up their fires day and night, are rarely troubled with dew on their machinery, negatives, lenses, and others. Being kept warm, these articles get no chance of chilling and condensing on them the watery vapor, ever present in the atmosphere of rooms. Unfortunately many are not so situated, especially in the country, where coal is not overabundant, and difficult to get. To such I would recommend to keep their valuable negatives in envelopes. From my own experience, I judge that plan to be the best protection for glass negatives. I keep mine in envelopes, then stowed away in pasteboard or in tin boxes, in parcels of a dozen each, and since adopting that plan, I have not lost a single negative from the causes complained of.

Mr. Bachrach, of Baltimore, advocates coating dry-plate negatives with collodion before varnishing, and he claims them to be proof against water. This idea is worthy of adopting, since it seems correct in theory. I have never tried it myself.

We all know what a messy thing it is to clean off old dry-plate negatives. Much more so with dry than with wet. I find it more convenient to steep the unvarnished negatives in warm water, which dissolves off the film, and leaves the glass in excellent condition for further treatment. Rejected negatives, before they are fixed, can have the film scraped off, and thrown with spoiled silvered paper, to be afterwards sent to the refiner. When they are varnished, a hot solution of washing soda almost instantly dissolves off the varnish, and frills the film away from its support.

I, for one, believe that the days of glass negatives, for outdoor work, are numbered. The Eastman Dry Plate Company have, as we understand, overcome the objection against paper negatives, and have given us films that can be stripped off their paper support, and transferred to sheets of gela-

tine. What an important revolution! What next?

All photographic lenses give more or less curved field. Instead of being a disadvantage, it seems probable that we can utilize the principle, if we would use curved plates. Curved plates are not practical with glass, but now, since we have paper, it remains for some one to invent a holder, that will present the sensitive surface curved so as to confer with the optical principle of the lenses.

To the amateur and the uninitiated I would recommend the use of developing dishes of rubber, or what is better known as ebonite ware. They are more expensive than the metal ones, but one rubber pan will outlast ten of the other kinds, hence it will be seen that instead of being very expensive, they are the reverse. Agate ware dishes are the nicest to work with, but unfortunately they are both very expensive and also they cannot last. The glazing always cracks and peels off. Porcelain pans are better in the long run than agate, but they likewise crack in time and become useless. Wooden pans coated with asphaltum are the best thing for silvering, also for developing large plates in. The silver eats up rubber, besides large rubber pans are very liable to break. Japanned iron pans go first, agate and porcelain next, rubber lasts longer, wooden pans are too heavy and bulky for small plates, but just correct for large ones.

There are many text-books on photography in the market that are worthless, avoid them, and take what regular and reliable photo. publishers offer. Many publishers know nothing of photography, and they accept manuscripts from ducklings in the art, who know good English language, but nothing of the art, and push the worthless trash to fill up their pockets, and they do not care whether the books help the purchaser or not.

RANALD DOUGLAS.

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**OUR PICTURE.**

ENTERING the season with the April show-ers so welcome comes the bright, wide-awake little picture "Sweet Spring," from the studio of Mr. G. M. Deane, Galveston, Texas.

Thus we have a baby voice from the "sunny South," and right gladly we greet it. Such baby models bring sunshine into the studio, no matter how dark the days. So airy, so graceful, so lovely they are, and such responsive little models, too. And yet it takes a great measure of love to get their best poses, and to overcome their unfathomable humors. Much attention has been given to this topic, and some useful notes have come to us lately in the answers to "Questions to the Craft," which are well worth heeding.

As further help, we add below from our personal scrap-book, some notes on the subject which have come to us from old friends and practical baby-lovers. First, however, we add a suggestion in the shape of a tiny autoglyph study, which comes to us at the head of Messrs. Wilson, Hood & Co.'s "Bargain List for 1887." It is entitled "Do you Wish any Bargains, Sir?" and was reproduced from a negative made by Mr.



William D. H. Wilson. The location was one corner of the garden at the rear of his residence, and beside his own personal hop vine. So it will be seen that no elaborate accessories are needed to create such little gems as this. The world is full of them, and only good eyes and feeling for the work are needed to secure them in plenty.

Mr. Deane is to be congratulated upon his splendid addition to our collection of baby pictures. The prints were made, as usual, upon the popular N. P. A. paper, imported for our use by Messrs. E. & H. T. Anthony & Co., 591 Broadway, N. Y. Messrs. Roberts & Fellows, Philadelphia, have given us

their formulæ for printing so often that we need not add them now.

The notes to which we alluded come from England and Germany, and are as follows:

The gallery is neither the place, nor is it the time, for educational experiments; and when they are attempted, screaming and crying are generally the result.

The calmness and patience of the photographer is the only remedy. A toy or a book should be shown, taking care, however, not to cause any excitement in order to reserve the surprises for the proper moment. When we have to deal with very shy children, it is best to keep away from them as much as possible, and apparently not to notice them at all, for by trying to influence them, we aggravate the evil.

These are the circumstances which might influence the expression of our little model. We will now consider the very important point of rapid working, which, of course, is necessary. This depends on several conditions.

First, the brightness of the living object. When we have a very light, or, if possible, pure white dress, a light background and a light chair, the exposure will be twice as short as if the surroundings were dark; for instance, the favorite black velvet dresses. As with so short an exposure the decorations would look very dark, it is better to omit them altogether, and to have a graduated background; in this way the supporting arm of the mother is removed.

The rapidity of the work is also dependent on:

- The brightness of the weather;
- The quantity of light;
- The sensitiveness of the preparations;
- The opening of the lens.

Sometimes one or the other of these conditions is wanting; sometimes all four are missing. When the light is poor, or if the atelier is small, it is better to omit the exposure, for all that we may accomplish with much care and trouble, would neither please us nor our customers. Often, however, we will succeed in spite of unfavorable circumstances, if we are only able to attract the attention of the little ones, particularly when we concentrate our exertions on the

right moment. It is, therefore, necessary to wait with the arrangement of the position, until the plate has been placed.—MAX PETSCH, Berlin.

Patience and tact (and what successful operator does not possess these?), and I think I must say some fondness for the little innocents, are all that is necessary in a fairly lighted studio to insure a pretty uniform degree of success, though, naturally, many occasions may arise when the most patient and skilful of men cannot command success.

But these occasions should not daunt—they should lead to renewed efforts; and after a slight apprenticeship to this branch of one's profession it becomes very interesting and attractive. It allows the fullest scope to one's fancy and invention in arranging poses, and one's skilfulness in controlling chemicals and taking advantage of the best light. A well-executed child's portrait is perhaps the most beautiful thing our art is capable of accomplishing, and what to many minds would be above all, it brings in the most "grist to the mill."

It is my custom always to make an extra charge for babies and young children. I find no difficulty in obtaining it. I may say they come, or, rather, are brought, at all ages, from a fortnight upwards, and I am never afraid of them. I once had a very graphic account given me, by one of my assistants, of the method of procedure adopted at one of the places he had been at previously. Little trouble was taken about arranging the infantile sitter; it was propped in a chair and one plate tried upon it. If good—and a very small share of success served to satisfy—the matter was ended, and the nurse or mother bowed out; if bad, a series of dummy slides—that is, dark slide without any contents—were brought forward, and the pantomime of exposing and uncapping gone through with the utmost gravity. Then the money was taken, and in a day or two the sitter was apprised that another sitting would be required. Apart from the dishonesty of this style of thing it is unwise, for I find a very large proportion of the grand total of my sitters are little folks; and if I were to knock them

off the list I should directly find my income materially modified, while indirectly I should lose still more, for in the train of children's pictures usually follow numerous commissions for enlargements, etc., and various colored work.

With regard to how to do it. The light, of course, is of prime importance. With the exception of a slightly projecting screen overhead the lights should be all uncovered, to obtain all the light possible; for it will be remembered that the soft, round face of a child will look well in almost any light. I do not mean to deprecate any exercise of talent in arrangement of light, but merely to say that with no arrangement at all it will be possible to obtain excellent results. I have on more than one occasion described my method of lighting, so that I need not here refer to it again. When using the maximum amount of top-light it will be found an advantage to throw on the floor a white screen or sheet to illuminate the too deep shadows a great excess of top-light would produce. The light from the south, when very strong, may be modified by a screen of light calico or tracing cloth, and not allowed to arrive too near the floor, or a very awkward spot of light is given to the eye nearest to it, which imparts an effect like squinting.—G. WATMOUGH WEBSTER.

### HER PHOTOGRAPH.\*

(*The Century Eric-a-Brac.*)

A picture of a dark-eyed girl,  
With pensive, thoughtful air,  
Whose pure sweet face looked from beneath  
Its frame of misty hair.

My heart was captured by her face;  
I loved her at first sight;  
"Sweet maid," I whispered, "let me be  
Your own true chosen knight."

And then I tried to find my queen,  
I sought her near and far;  
Her pictured face shone on my path,  
And was my guiding star.

But, oh, how can I tell the grief,  
The bitter grief to me,  
When I found out, beyond a doubt,  
There wasn't any *she*!

\* See "Composite Photography," in *The Century* for March.

For this sweet picture that I loved  
 (Kind reader, do not laugh)  
 Turned out to be a very good  
 Composite photograph!

And the fair girl whose pensive eyes  
 Had made my pulses stir,  
 Did not exist, or rather there  
 Were forty-nine of her!

One woman's face was in my mind—  
 How could I then divine  
 That I, while faithful to one love,  
 Was true to forty-nine?

O Science! you have done this thing,  
 On you I lay the guilt;  
 You've made my honest love appear  
 Like any crazy-quilt!

And this one thing I ask of you,—  
 Can you, with all your art,  
 Unite these forty-nine poor bits  
 And give me back my heart?

BESSIE CHANDLER.

### THE HUMOR OF IT.

A WIDE-AWAKE photographer in Paris is now distributing circulars couched in the following terms, and especially intended for the fair sex:

MADAM,

Your charms excite the admiration of all Paris. I am awaiting with impatience your order to fix upon paper features that are so much admired as yours. Yours to serve,  
 X.

The little flowers were secure

Where winter's chain had bound them,  
 But now the wily amateur

With "wide a-" lens has found them.

No longer nature's loving hand

Tucks winding sheets around them,  
 "Sweet spring" has come to bless the land,  
 The focusser has found them.

A NEWSBOY who was eating away at a yellow banana, while he had two red ones stuck in his pockets, was approached by another and asked:

"Did you get your tintype took fur ten cents?"

"Naw."

"Too cloudy?"

"Naw! I was on my way to the gallery

when bananas dropped to three for ten cents and I took advantage of the decline. Tintypes are allus ten cents but bananas bob up and down."

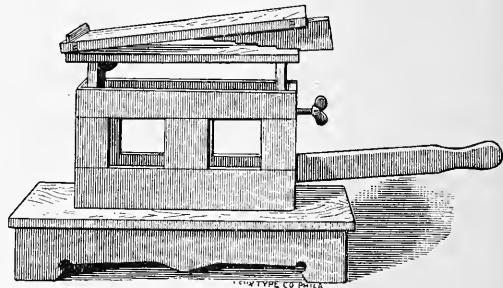
### A BABY CAMERA STAND.

BY N. M. WILCOX.

One of the most useful things I have in my operating-room is my baby camera stand.

I could find nothing of the kind in the catalogues, so I, having served my time at cabinetmaking, took advantage of a few wet days and made one, a nice piece of furniture. It is sixteen inches high, has a raising capacity of ten inches, and works with a lever. The ordinary stand is three feet, which is too high. If you take the little fellows in a low chair or on the floor, you get an unpleasant upward stare, you shorten the neck, and otherwise distort the image.

With the baby stand you get down on a level with the little ones. You will have to stoop, very few can do it gracefully, but an *artist* would double up like a two-foot rule to make a good picture.



Many good pictures are spoiled by not getting down low enough, we see them every day. I select one, because all your readers have seen it. It is the beautiful photographure, "After Play," in your issue of August 21, 1886.

It is a splendid subject, full of sentiment and well executed, but there is the corner of the marble-top table sticking out from under the corner, "tosteal the charm away." If it had only been on the floor it would be complete, "A thing of beauty."



All who love babies, get a low stand and be happy.

I trust those who try it will not be disappointed. Some operators may consider it nothing, but I would not try to take babies without it.

In taking the little fellow on the floor just spread your rug down, let the nurse or your assistant hold him in position until you get your focus, note his position on the rug, now turn him loose, he will bob out of focus, of course, but he will soon move back in a prettier position than when you took your focus. Watch, and when he is in the same spot on the rug snap your shutter and I will warrant you will be paid for all the time and patience you spent on him. One who does not love babies should never try to make baby pictures.

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### DEVELOPMENT OF "BROMIDE" PRINTS (EASTMAN).\*

BY ANDREW PRINGLE.

CERTAIN remarks that have lately reached me, by channels public and private, caused me to devote some time and a little careful experiment to the use of the bromide paper, sold largely, in America and here, by the Eastman Company. I confine my remarks, as I confined my experiments, to that paper, but I would like it to be clearly understood that, for all I know, other bromide papers may come under precisely the same rules, may have the same defects and the very same excellences, as the Eastman paper. I have never used any of the other bromide papers since certain improvements, of which I read and hear, have been made, and I have no right and no intention to say a word, good or bad, about any paper except the Eastman, and so I trust I shall not be taken up wrongly by any one who uses other papers.

A member of this Club made, at a meeting, the remark that "thin flat" negatives were required, or were the best for printing on bromide paper, by contact, as I understood him to mean. In terms very plain, but I hope not *brusque*, I expressed my opposition to his statement; but soon after,

remembering that my experience of papers, other than Eastman's, was not of very recent date, I was inclined to repent my haste, more especially when a skilled office-bearer of this Club told me, by letter, that some of our best workers disagreed with me on the point at issue. I felt confident enough of my rectitude regarding Eastman's paper, "but," thought I, "Eastman's paper is not every paper, and I may be wrong about other papers." Then, in an editorial in the *British Journal*, I came across the following sentence, plain enough, and inclusive enough, to put me on my feet again: "In development printing on bromide paper, the best results will accrue from the employment of a tolerably vigorous though harmonious negative." *British Journal of Photography*, Dec. 24, 1886. Now we all know that a "tolerably vigorous" negative can not be synonymous with a "thin," much less a "flat," negative. So that, on the whole, I gave up my idea of smoothing down my assertion, and my opinion remains as it was, that thin negatives are *not* the best for printing on bromide of any kind with which I am, or ever was, acquainted. That a decent print *can* be made on bromide paper from a thin flat negative I will allow; in fact, I propose to attempt to prove it, but to those intending to print on bromide paper, my advice is to make your negatives anything you like, *except* thin and flat.

I send for your inspection a few negatives, picked out of the few not packed away, as being representative of what I venture to call various-characteristic negatives. I did not choose them as likely to give me good prints; I did not intend to make good prints. I chose them as being of very different kinds; you will find one a mere ghost, another outrageously dense; two others of the same view—one overdense, the other too thin in about the same proportion. Except one, the views are all more or less snow scenes, one being a very awkward subject, a dark foreground *in shadow*, with a background of snowy hills. Two of them are unprintable on albumen, without "dodging" or specially prepared paper; the others are more or less printable, but not one of them makes a really good albumen print, though several print passably.

\* A communication read at the Camera Club.

I send also twelve consecutive prints on bromide paper; these I made straight ahead. I send all I made—good, bad, and indifferent, and in printing them I used no dodges of any kind, I put no paper nor coloring material, nor did I mask any part of any negative. One I held to the gas at a slope; there is a slight appearance of masking, but you will find it due to the negative; apparently there was a cloud on the hill, though I did not notice it.

The exposures of these prints vary considerably, as you will gather from the appended notes. Mr. Burton will tell you the proportion between ten seconds to gas at sixteen inches, and ten seconds to daylight; it is a pretty large figure. I included in my trials a couple of exposures in the daylight enlarging camera, but it was impossible to gather any lesson from these, as the light was very bad and constantly changing—in fact, a heavy fall of snow came on in the middle of my second exposure. My developer also varied in strength; I began each time by making a solution of six of Eastman's potash oxalate solution to one of his iron, and I added each time half a grain of ammonium bromide to each ounce of the ferrous oxalate solution. But, as you will observe, I added water sometimes, and a very great difference it makes in the result. On two occasions I added a drop or two of my hypo bath, and in one, which I have purposely left untrimmed, you will see, on the left top corner, the red fog, due to an overdose of hypo, or rather to pouring on too frequently at that place a developer containing an overdose of this very debatable accelerator. While I am on this subject, may I suggest that it would be very instructive to members if failures were more frequently shown? More may be learned from one failure, if the operations have been carefully noted, than from one hundred perfect results. My chief regret is that my negatives are nearly all snow scenes; these are so little familiar to us that it is more difficult to arrive at sure conclusions; but, as I said before, I had only a few negatives at hand, and they were either snow scenes or else too good for my purpose.

But the conclusions I arrived at were perfectly confirmatory of what I had gath-

ered from less accurate observation, and I will venture to state some of them.

1st. With bromide paper, prints can be produced, without any dodging, from negatives practically unprinted by any other process. I would like to see a decent print by any process whatever, except bromide paper, from the dense negative of Haddon Hall that I exhibit, and yet, instead of over-hardness, which is the character of the negative, my print is, if anything, the very opposite. And, except by gelatino-chloride, I do not think any decent print could be produced from the negative already referred to (a foreground in shadow, with a background of snowy hills), and yet my print is the very opposite in character to the negative, for while the negative is for the most part a spectre, the print is distinctly hard. I do not think any amount of dodging with other processes would make good prints of these two, yet you will see that with slight variation in exposure, I might have made these prints *perfect*, while dodging is as easy with bromide paper printing as any other process. For example, if I had any great object in making a perfect print from the spectral negative, I would mask or color the weak part. The other, the dense negative, requires nothing at all, beyond a very long exposure. Printing this on albumen, to make anything like a decent print, I have had to sun the paper down to an alarming extent, and the negative is altogether too hard, even for platinotype.

2d. I concluded that there are certain rules which can be laid down for the guidance of workers with this paper, and some of these rules I may point out.

A, full exposure means softness.

B, short exposure means contrast.

C, strong development means brilliance.

D, weak development means softness.

E, bromide means vigor.

Now, if we have a good medium negative to print on bromide paper, we can do pretty much as we like with it. We may make a hard contrasted print by a short exposure and a strong development, or we may make a "soft" print by full exposure and weak developer. A very hard negative can be made in printing as soft as desired by a long exposure to a bright white light and a weak

developer. A very "thin, flat" negative may be made into a print as plucky as we wish by a short exposure and a strong developer. Bromide has a very powerful action in the developer; if the image comes up too quickly, an extra dose of bromide, applied instantly, may make the print brilliant, even to hardness. But I think, if the image does not begin to appear with full-strength developer in about thirty seconds, or forty at the most, *that* print will not be of much use. When the developer is weakened with water, the image appears more slowly and gains density more slowly; sometimes a minute elapses before any appearance of image. If the development is too slow, a certain grain appears in the paper; *that* print is not worth much.

It is very important to solidify the paper after development and before washing. I use citric acid; water with much lime is bad. Always alum after fixing; my prints sent are not alumed; I had no time. You can give the prints a glaze by squeegeeing to talced glass, or to ebonite sheets, or you can leave them with their natural surface.

And the bromide prints are "Permanent," as permanent as any purely photographic printing process we have.

[Translated for the Philadelphia Photographer.]

### PLATINUM TONING OF PRINTS MADE ON EASTMAN PAPER.

BY LEON VIDAL.

To increase the permanence of positive prints on Eastman paper, they may be toned with platinum in the same manner as gold toning is done on albumenized paper prints. When the image has been developed in the ferrous-oxalate bath, and washed in water acidulated with acetic acid, it is immersed in a platinum bath composed of; bichloride of platinum, 1. gramme; water, 2 litres; pure hydrochloric acid, 20 to 30 grammes. The toning is rapid. The prints may be allowed to remain in this bath from twenty to thirty minutes. As they weaken a little it is necessary to print stronger than they should be at the end of the toning and fixing operations. To make sure of the action of the platinum bath, cut a strip from the edge of the print and plunge it into a solu-

tion of bichloride of copper at twelve per cent. If the print be covered with platinum, the image will remain, otherwise it will almost completely disappear in the bichloride of copper bath. To bring back an image which has disappeared, changed into chloride of silver in the bichloride of copper, rinse in several waters and plunge in a bath of ferrous-oxalate. It returns very perfect and with a still more brilliant tone than it possessed after the normal development. The action of platinum toning modifies and improves the tone of images by giving them a more decided blue-black tint. After fixing and the last washings, the prints should be allowed to remain for about ten minutes in a five per cent. ordinary solution of alum. In it the gelatine becomes hard and thus, less susceptible to the deleterious action of humidity in the atmosphere. If the prints on Eastman paper are to be used directly and then transferred to stone or zinc, no special sizing is necessary if they have been alumed; if they have not been they are first alumed in a two per cent. alum bath. To see better the work executed with autographic ink, suppress the bichloride of copper print, and restore it afterward with ferrous-oxalate, if retouching is necessary, if some details have been neglected. After having transferred the lines to stone, clean the image with mineral essence or with benzine, and it will be preserved intact. The platinized images will not entirely disappear, and it is only the portion of these images formed of silver which will be transformed by the bichloride of copper. With a solution of this salt, using a pencil or a goose-quill, it is easy to retouch in white, such as removal of spots and stains, signatures in blank, etc. According to the greater or lesser quantity of sulphate of iron added to the neutral oxalate of potash, we obtain, in reconstructing the images, variable tones, which allow us to have them more or less intense, as we may wish.

### THE WORLD'S PHOTOGRAPHY FOCUSSED.

MR. DALLMEYER'S valuable table (see pp. 205-208) appeared as a supplement to the *Photographic News* of February 18th.

AN English amateur adapts his camera for enlargements by fitting to the front a very light deal box, covered with cloth. The box is fitted with grooves and strips, whereby it holds the sliding-front of the camera with the lens, and fits into the grooves for the front in the camera-body.

THE *Journal* also tells a little story of how a new photographer came into a town and opened with new apparatus, accessories, finely furnished studio, examples of portraits in the latest styles, etc. He began to draw the trade of the one other good photographer in the town, though his prices were but little lower. What did the latter do? Order necessary new accessories, and furbish up his place? No; he reduced his prices, and lost then the little remnant of his high-class patronage. It is the old story. When the pinch comes, don't reduce your prices; improve your work.

A CALL for a meeting "of the photographers of Chicago," with the names of sixty-five persons, was issued for February 15th, to consider the coming Convention, but not a word has been heard as to what the result was. If Chicago don't rise to the occasion, who will?

P. A. of A. Treasurer, Mr. G. M. Carlisle, Providence, R. I., has issued his circulars to members, and instructions to would-be prize-winners. Copies free to those who want them.

PRINTING BY ARTIFICIAL LIGHT (process of Mr. Pumphrey).—At the Birmingham Photographic Society, Mr. Pumphrey gave some explanations concerning the process he uses for printing, on bromide plates, transparencies for the lantern, with the aid of artificial light. He uses a coal-oil lamp, with a round wick, giving a strong light. On a line with the lamp is a screen holding the negative, and on the side of the source of light is a simple lens, sufficiently large to cover the negative; then, at some distance, is the camera furnished with its lens. Before fixing the negative in its position, the lamp is placed at such a distance from the screen holding its lens, that the rays are brought to a focus almost on the lens of the camera.

This method, which is especially useful in winter, when no reliance can be placed on sunlight, is to be preferred to printing by contact, for the kind of negatives in question.

PHOTOGRAPHY AT THE LONDON ASTRONOMICAL SOCIETY.—At the last meeting of the London Astronomical Society a very interesting paper was read by Professor Pritchard, having for its title "The Application of Photography to the Determination of the Stellar Parallax." The author is convinced of the practical utility of photography for the measures in question; and Mr. Common and the Royal Astronomer are of the same opinion. Mr. Ranyard expressed some doubt in regard to the correctness of the measures thus obtained on photographic plates. Mr. Pritchard having obtained four stellar plates, every night, for some time, took two hundred of these plates, and in this number only three were found that gave an exact measurement, owing to the irregular extension of the film in washing, etc.

PRINTS FOR PROJECTIONS.—The Liesegang process, published in the preceding number, for the transfer to a final support, rigid or flexible, of prints made upon gummed and collodio-chloride paper, is admirably adapted to the making of prints for projections and to the transfer of network on positives or negatives that are to be engraved. There is an advantage in using a flexible vehicle in preference to a rigid support when making by contact impressions from phototypes on glass. However reduced the surface of the glass plate may be it is never completely plane, which gives rise to defects that may be avoided by the use of a sensitive paper adhering completely to all the parts of the negative. The sharpness of collodio-chloride of silver prints is so great that very complete results may be expected from its use. The same remarks may be made concerning any gelatine emulsion capable of giving the same sharpness in the details. The transfer to glass is so easy, so rapid, and so prompt, that there is on this score no complication to be feared. For network, grainings, or lines, to be applied to negatives for engraving purposes,

nothing is easier. The network is printed on the collodio-chloride, then transferred to the negative, as it would be on a glass plate that had been slightly gelatinized. In this way juxtaposition is very close and the imperfections arising from an insufficient contact between the network and the negative are avoided. The paper may be collodionized as wanted. M. Liesegang furnishes the gummed paper and collodio-chloride separately.—LEON VIDAL, *Moniteur*.

#### ENAMELLING PHOTOGRAPHIC PRINTS.—

Take an ordinary plate and after having carefully washed it with acidulated water and with soda, rinse in abundant water and wipe briskly. Then, with a clean cloth rub the surface with a little Venice talc. After having removed the excess of talc with a soft brush kept especially for the purpose, cover the surface of the plate with a coating of plain collodion at two per cent. Run off the excess of collodion by inclining the plate at an angle of forty-five degrees, and allow it to dry spontaneously, not minding the wrinkles produced on the surface. In about a quarter of an hour the plate may be used as a transfer by immersing it in the gelatine bath. To prepare this bath, ten per cent. of white gelatine has been put to soak for a few moments in cold water. By slightly raising the temperature the gelatine is completely dissolved. Now filter on a cotton wad placed in the mouth of a glass funnel, and let the bath run into a porcelain dish previously heated with a little boiling water. The print to be enamelled is now completely immersed in the gelatine bath; whilst the print is in this bath take the dry collodionized plate and, with the aid of a spoon, wet with gelatine all the collodionized surface. Now raise the print, and after having applied the albuminized side to the collodionized side of the plate, remove the gelatine in excess with a squeegee or bone paper cutter, by moving it over the back of the print, which then adheres by the interposition of the gelatine to the collodion film. The opposite side of the plate is washed with water that is almost boiling, which heats the gelatine and shows if there are any air bubbles. Leave for a few hours, then with a pen-knife cut out

the print to which the film of collodion adheres, forming the enamel. When the operation is ended pour the gelatine bath into a special bottle, and when set it may be preserved from injury from the air by covering the surface with a small quantity of alcohol. As to the plates which have served for the support of the collodion film, it is only necessary to detach with a pen-knife every trace of the collodion pellicle, and after again rubbing with talc they may be used as before.—*La Nature*.

#### PRACTICAL POINTS FROM THE STUDIO.

THE *British Journal* calls attention to the importance of the process of soaking in the solution, when preparing orthochromatic plates. The plate, it recommends, should first be soaked in distilled water until the film is thoroughly softened, and the water runs evenly over it without streaks or grease-like markings. It is lack of thoroughness of this that often causes failure, the sensitizing solutions penetrating unevenly or insufficiently. The hardness or softness of the film also is to be noted as influencing the rapidity of the penetration of the solutions. A small quantity of ammonia or glycerine may be added to the water in the case of very hard films, but these two must, of course, have a last washing in pure water before immersion.

PORTRAITS enlarged from small negatives are not of necessity free from distortion, as is sometimes supposed. With a short-focus lens distortion that was not noticeable in a card-size original may become very pronounced in the enlargement. The photographer, not knowing this, cannot understand the complaints of his patrons that his enlargement is very unsatisfactory, although the original is perfectly good. The best way to get over this is to use a good long focus lens, well away from the sitter—as many know.

THE *British Journal* gives the following as a good fixative for crayon and pastel work: Add to 5 ounces of rather weak acetic acid 1½ ounces of gelatine, and after allowing to

soak for five minutes, add a quart of boiling water. Warm gently, occasionally stirring, until the gelatine is completely dissolved. When cool, filter through a piece of cambric; and add an equal bulk of spirits of wine, and shake well. Apply to the back of the print with a brush. A few of the highest tints may be slightly lowered by the fixing, but may easily be touched up after it.

Still other fixing solutions in use by artists are: One ounce of gelatine to a pint of water; add as much alum as will dissolve, and six times total bulk of solution of spirits of wine.

Half an ounce of gelatine in three pints of water; heat to boiling, and add two ounces of pure white soap. Boil fifteen minutes, then add four ounces of powdered alum. When nearly cold filter through muslin, and add half a pint of spirits of wine.

ON THE RETOUCHING OF PRINTS THAT HAVE BEEN MADE YELLOW BY SULPHURETTED HYDROGEN.—The yellow color of photographic prints which have been subjected to the influence of sulphuretted hydrogen, seems to be caused, according to some chemists, by the action of sulphur on the traces of iron contained in the paper, or, which have been absorbed by the paper during its passage in the different photographic baths. This iron forms a sulphuret of iron, which is black, but existing here in an almost infinitesimal quantity; the result is a yellowish tint, approaching more or less a brownish-yellow. This tint is removed as if by enchantment by the action of a greatly diluted solution of chlorine water, or by a weak solution of chloride of lime. It would be very interesting to make this experiment with faded silver prints, care being taken to use at the beginning extremely weak solutions, toning afterwards, should it be necessary.

MR. OBERNETTER'S PROCESS FOR REPRODUCING ORTHOCHROMATIC PLATES ALLOWING PHOTOGRAPHS OF LANDSCAPES TO BE MADE UNDER YELLOW GLASS.—This process is as follows: wash the plate about a minute in distilled water, drain, then coat, for a minute, with a solution of fluoride of silver at 1:2000; rinse, then

cover it at three different times with a solution of azaline and erythrosine, composed as follows: solution of erythrosine, 1:1000, 25 cubic centimetres; solution of commercial azaline, 2 cubic centimetres; solution of carbonate of ammonia, 1:6, 50 cubic centimetres; water, 1000 cubic centimetres. Drain and dry.

#### TONING BATH FOR COLLODIO-CHLORIDE:

##### No. 1.

Distilled Water . . . 360 grammes.  
Chloride of Gold . . . 2 "

##### No. 2.

Sulphocyanide of Ammonium . . . 30-40 grammes.  
Water . . . 1 litre.

The quantity of sulphocyanide should be determined upon by the operator, as the greater the proportion, the warmer the tones will be. No. 1 is added to No. 2, slowly stirring and continually agitating. A precipitate will be formed; after reposing for a few days the precipitate is redissolved and the solution becomes clear; in no case should the bath be used before it is entirely clear. Place in the dish one ounce of the bath for each sheet to be toned, diluted with five times its volume of water.

A MODIFIED DEVELOPER.—Mr. Carbutt has kindly sent us for publication the following letter written to him:

MR. JOHN CARBUTT, PHILADELPHIA.

DEAR SIR: I use your plates exclusively in all my work, and am of the opinion that they are the best plates made.

The developer given in your directions is very good, yet I find it gets slower as the pyro solution gets old, even a day or two making quite a difference.

For a short time I have been using a developer after my own idea, and I find it very quick in action, giving a fine tone in the negative. It is made as follows:

Granulated Carbonate of Soda . . . . . 1 ounce.  
Granular Sulphite of Soda . . . 1½ "  
Water . . . . . 64 "

Dissolve and add:

Sulphurous Acid . . . . . 1 ounce.

To develop I take for a 5 x 7 plate two ounces of the above and add pyro, dry, from four to six grains.

If you will give this a trial, I think you will like it. It is so simple, quickly made, and no accurate measuring required after the solution is once made up.

I find all developers in which the pyro is kept in a stock solution to work slower with age, owing, I suppose, to the sulphuric or other acid added to the pyro to make it keep.

Fraternally yours,

O. M. PAUSCH.

—*Photo. Times.*

ON THE RESTORATION OF DETERIORATED NEGATIVES AND NON-EXPOSED GELATINO-BROMIDE PLATES.—At the North London Society the interesting question was asked, if it be possible to restore a plate which had suffered deterioration from having been kept too long a time.

Mr. Wackie and Mr. Healey placed before the members present some gelatino-bromide plates prepared in 1876 and 1878, and negatives obtained from some of these plates in 1886. These last are perfectly satisfactory; nevertheless, there are some plates that cannot be kept without considerable loss of their primitive qualities—I mean negatives. By treating these negatives with bichromate of potash and hydrochloric acid, according to Mr. Taylor, the image is changed into chloride, and Mr. Hart obtains the same result by plunging the negatives in chlorine water. After this treatment expose the plate to the light and develop again with ferrous oxalate. In regard to restoring unexposed plates, Mr. Hart thinks that bromine water would give results equally satisfactory.

NEW BROWN LIGHT FOR THE DARK ROOM.—Our papers announce that the red or yellow light of the dark room may be advantageously replaced by a brown light, which is much more agreeable to the operator. The experiment was first made in Germany, where some photographers pasted on the glass of their dark room sheets of brown tissue paper (*Seidenpapier*), which gives a beautiful and soft light, not affecting the eyes, and having no action whatever,

it is said, on the most sensitive plates, giving, besides more light than the red light ordinarily used.—DR. PHIPSON in *Le Moniteur*.

ERYTHROSINE.—Mr. Warnerke has found that erythrosine does not always cause veiling, and that increasing the strength of the bath in this manner cannot compensate for the absence of yellow glass, the interposition of which seems to him indispensable. If the plates are plunged, a few minutes before development, in a five per cent solution of bromide of ammonium, veiling will not occur.

A PROCESS FOR ENAMELLING IMAGES OR PORTRAITS COLORED WITH WATER-COLORS. (BRANGWIN-BARNES.)—The plates are cleaned either with talc or with wax and benzine, then coated with collodion and plunged into water when the collodion film is dry. The colored paper prints are also coated with collodion, allowed to dry, passed through a hot solution of gelatine and then laid on the collodionized plates. They are placed in a press and kept there for about an hour. By means of Russia glue thin pasteboard is fastened to the back of the prints. When completely dry, the images are detached from the glass, and, after cutting the outlines, they are stuck by the corners on a suitable mount.—E. SCHMIDT in *Photograph Wochenblatt*.

COLOR-SENSITIVE PROCESS WITHOUT YELLOW DISK.—On page 36 of the *Photogr. Correspondenz*, 1887, we read in the report of the Vienna Photographic Society the following:

The chairman, Dr. Eder, called the attention of the meeting to the orthochromatic pictures of Prof. Vogel, concerning which the latter reiterates his opinion, that the color-sensitiveness of the plates is materially increased if the combinations of eosin, erythrosin, chinolin-red, etc., with silver (eosin silver) are used as sensitizers. According to this method, Obernetter and W. H. Vogel have produced very sensitive orthochromatic plates, which permit even instantaneous pictures. (The chairman referred to such a picture of Prof. Vogel's.)

The reason of the sensitiveness may be that to the optical sensitizer (dye) the chemical (silver combination) is added. The production of such plates could take place in different ways, for instance, the plates could be first treated with the coloring bath; then with silver solution (first announced by Obernetter) with erythrosin azalin (*Photogr. Mitth.*, June No., 1886, page 71); or as Vogel discovered, eosin silver, *i. e.*, the precipitate of eosin and nitrate of silver can be dissolved in ammonia and added to the emulsion, or 5 c. cm. Rose Bengal (1:5000), 1½ c. cm. solution of nitrate of silver (1:1000) and 1 c. cm. ammonia can be used (*Photogr. Mitth.*, June No., page 76). By this means a great step is taken in orthochromatic photography.

### IODIDE OF STARCH.

SEVERAL of our readers have expressed an awakened interest in the elimination of hypo from their prints—a very laudable interest too—and have been turning over their books to find tests.

In answer to their queries, we add what follows from the pen of Dr. H. W. Vogel and Dr. M. Carey Lea. Dr. Vogel says: I have succeeded in finding a test for hypo which is at least very simple. It is based on the reaction of hypo on iodide of starch. When you add hypo to iodide of starch; the same is discolored instantly; the concentrated the iodide of starch, the more hypo will be necessary for discoloration. If, therefore, a very dilute solution of hypo, such, for instance, as the water in which prints have been washed, is to be tested, a very dilute iodide of starch will be necessary.

I prepare the same in the following manner: one part of arrowroot is dissolved in a little cold water, and afterwards about 100 parts of boiling water are added. In this manner I obtain a colorless solution of starch. This solution of starch is mixed with one-fifth of a straw-colored solution of iodine in iodide of potassium. This gives a beautiful blue solution of iodide of starch, which will keep for several weeks, and might be kept on hand by stockdealers. If the water in which the prints have been

washed is added to this solution of iodide of starch, it of course becomes diluted, and consequently paler, even if the water is perfectly pure. This might easily be mistaken for a discoloration, therefore it will be better to proceed in the following manner: take two test-tubes of about equal diameter, and put in each of them about a cubic centimetre of iodide of starch, add to the one about eight times as much pure water, of the same kind as has been used for washing, and to the other the same quantity of water in which the prints have been washed, and it will then only be necessary to shake both test-tubes up well, and hold them against a piece of white paper and compare them; even by lamplight it is an easy matter to discover discoloration, if the same has taken place.

The easiest mode is to look vertically down into the tubes. I have tried this process carefully, and find that when only one millionth part of hypo is present, a distinct discoloration takes place. On account of this extraordinary sensitiveness, great cleanliness in the glasses and the hands is required.

Dr. Lea says: This reaction is the most delicate of all. The best course is that recommended by Dr. Vogel to use two tubes, and place a piece of white paper behind them, the better to judge of the color.

The following is the method which I employ for preparing and using the iodide of starch: Place about a quarter of an ounce of water in a test-tube, take a bit of fine starch, grind it between the finger and thumb, letting the powder fall in the water, half a grain is sufficient. Boil till the liquid is clear, and let fall in a single drop of tincture of iodine, agitate well and let cool. Of this dark blue solution, allow a drop or two to fall into each of two test-tubes, an exactly equal quantity in each, then fill the test-tubes half full, one with distilled water, the other with the liquid to be tested.

The color of the blue should be just perceptible in the tube with common water. If then the blue disappears in the other, it is an indication of the presence of hyposulphite.



## Editor's Table.

GOOD SUBSCRIBER—Will you take a little trouble for us and kindly send us a list of the addresses of photographers known to you, especially if you are in the South or West? Your care we will surely reciprocate. We want every photographer to know what the PHILADELPHIA PHOTOGRAPHER is, and what it is doing. And the more widely it circulates, the better still can we afford to make it for you.

In regard to the difference between micro-photographs and photo-micrographs, Mr. W. H. WALMSLEY writes us as follows:

"I have written several communications on the subject myself, taking the same ground that the late Dr. WOODWARD did. In the last *Supplement* to Worcester's Dictionary you will find these definitions:

"MICRO-PHOTOGRAPH.—A photograph of proportions so minute that it requires to be examined by the microscope."

"PHOTO-MICROGRAPH.—An enlarged representation of a microscopic object, produced by throwing its image through a suitable combination of lenses, as of a microscope, on a sensitized plate."

MR. L. M. PRINCE, of L. M. PRINCE & BRO., Cincinnati, Ohio, called upon us recently. The new firm, which succeeds BLAIR & PRINCE, is starting out with enterprise. They have an excellent and complete stock of photographic supplies, and are also the agents in the State of Ohio for the BLAIR cameras. Their State is the home of a great many good photographers—it will be remembered that two of the three prizes at the German Convention went to Ohio—and we heartily recommend the new firm to them. We would call attention to their card in another column.

A NEW and much enlarged edition has been published of that excellent little manual, LONG'S *Art of Making Crayon Portraits on Solar Enlargements*. It is hardly necessary to point out the field for such a work, when crayon enlargements are growing more popular day by day, as at present. The crayon should be one of the standard processes of every enterprising photographer. This little manual gives minutely and completely all the necessary information to enable any photographer, with a little practice, to produce satisfactory solar crayon portraits.

Full directions are given as to outlining, shading, and finishing hair, face, drapery, and background. Even the accomplished artist may find some new hints in it that may prove useful to him. We have a supply of the new edition; its price is fifty cents.

WE would call the attention of our readers, most especially those who are working the photographic or lithographic engraving processes, or are thinking of doing so, to the new steam press advertised in another column. Heretofore, in working the finer photo-mechanical processes, the difficulty has not been in making the plates—that is soon overcome—but in printing them. Here at last is a press on which plates may be printed by one who is not almost a genius. The need of highly skilled and consequently high priced labor is by it overcome, and the production of good photographic process prints thereby immensely facilitated. We would earnestly recommend those of our readers who are interested in this class of work to look into the matter.

THE illustrations accompanying the unpublished letters of THACKERAY, in *Scribner's Magazine*, will be unique. There will be portraits, views of places mentioned, etc.; but the principal illustrations will be THACKERAY'S own work. Many of the letters contain sketches, which will be reproduced in *fac simile*; and others of his drawings, which are in the possession of Mrs. BROOKFIELD, to whom most of the letters were written, will also be given.

"I BREAK' works like a charm," writes a correspondent; "the last two numbers arriving as flat as a board, which was very rarely the case heretofore."

PICTURES RECEIVED.—From Mr. N. M. WILCOX, Burnet, Texas, comes a clever composition of two Texan youths, in taking and characteristic attitudes, engaged in discussion over a miniature log cabin they have been building. A base-ball bat, torn spelling-book, tin can, etc., are posed as accessories, and the whole picture is real and lively, remarkably so for a studio composition. It is a departure into a branch of picture making that should be more worked than it has been. Mr. E. M. JOHNSON, Crown Point, N. Y., sends us an excellent snow effect—a little maid and two little lads all capped, wrapped, and

befurred, on a toboggan. The composition is careful and very good, and the expressions add to the picture.

WE have received from M. FELIX GRENIER, Prefect of Deux-Sevres, France, through the kindness of Dr. E. CROSSAT, four of the latest of the valuable series of manuals of heliographic processes published by M. GAUTHIER-VILLARS, Paris. Their subjects are the transformation of negatives into positives, for heliogravure; zincography; heliography, and galvanoplasty, all by M. V. ROUX. They are full of new and useful matter, and very welcome.

WE have received from Dr. Eder the *Jahrbuch für Photographie und Reproductions-technik* for 1887. It is one of the very best annuals we have seen; for those interested in the photographic engraving processes perhaps the best. It contains a large amount of new and valuable matter on these, which is accompanied by copious illustrations, some of them examples of the processes, chiefly zincographic. Besides these, over two hundred pages of excellent photographic literature, full of the solid fact and detail that our German co-workers know so well how to gather, the book contains the usual lists, tables, and formulæ—some seventy-five of the former, many of which are new; and a review of the photographic progress of the year, in every department of the art. Certainly this solid little book, of nearly 400 pages, is a decided contribution to photographic literature, and, to those of our subscribers who can read German, should be very valuable.

OUR German friends who are amateurs also are at last to have a journal of their own. *Der Amateur Photograph* is the title of a new monthly journal, published at Düsseldorf by Dr. Ed. Liesegang. Although there is no lack of photographic periodicals, yet they contain, so the editor thinks, so much extraneous matter—in reference to the application of photography to scientific, artistic, and industrial purposes—which is of little interest to amateurs, it becomes necessary to have a special organ for tyros, which shall contain essays on practical subjects, written in a clear and concise manner. A department of "Questions and Answers" will be superintended by the editor, with the aid of his subscribers.

"We have already been promised," he says, "the coöperation of many prominent authors, and illustrations will be freely used to make the

magazine an efficient and useful one. Photography has been so simplified by the introduction of the gelatine process that it is now much more accessible to amateurs than heretofore. In fact, at the present time there are found many, in all classes and conditions of life, who make photography a favorite pursuit. May our journal increase the interest in this beautiful and useful art, and bring many new followers!"

We heartily echo these last words, and wish the new journal much success.

MR. L. W. SEAVEY will send you an attractive "bargain list" of "misfits," if you apply to him.

WE omitted to credit the paragraph on "Isochromatic Photography," on page 189 of our last issue, to our esteemed contemporary, the London *Photographic News*.

MR. W. B. GLINES, Hutchinson, Kansas, has favored us with some charming animal studies—of dogs, cats, and chickens. "A Happy Family" is a hen and her brood—part upon her back, part peering from under her, and part about her in a most natural pose, caught most naturally. "The Judge" and "The Jury" are cats and kittens—we should prefer to trust the jury. "Hello!" and "Vic, Jr.," are excellent dog pictures, and all show the alert and careful artist.

F. D. MILLET, the well known artist and author, has written a story of artist life, which appears in the April *Scribner's*. The island of Capri, where the scene is laid, furnishes a charming background for the story.

CYCLONE PHOTOGRAPHS.—Will any of our readers who have photographs of the devastations of the cyclone in any direction please send us proofs, with bill and particulars, at as early a day as possible?

MESSRS. E. & H. T. ANTHONY & Co. have been enjoined by the EASTMAN DRY PLATE & FILM Co. from making Bromide Paper by machinery. The hearing is set down for April 1.

THE GUNDLACH OPTICAL Co., of Rochester, N. Y., is one of our growing firms of makers of optical goods. Though a young Company, their enterprise and their excellent goods are rapidly pushing them forward to a prominent place in the trade. They have worked hard to produce a first class American lens, and have succeeded. We call attention to their advertisement.





Wm. W. Chapin Rochester, N.Y.

PHOTO-GRAVURE CO., N. Y.

SOLICITUDE

THE

# Philadelphia Photographer.

EDITED BY EDWARD L. WILSON.

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## PHOTOGRAPHY BY PHOSPHORESCENCE.

BY DR. JOHN VANSANT.

ON the 6th of October last, I discovered what was, so far as I could ascertain, a new fact in physics, and one that may be of practical importance, viz., that *the radiation from phosphorescent bodies can affect a photographically sensitive surface, and that pictures can be made by the t means.*

Quite unknown to me, M. Ch. V. Zengler, it now appears from a paper communicated by him to the Academy of Sciences, Paris, August 30, 1886, had previously made the same discovery, though he had not published it. I did not immediately make publication of the new fact either, as I wished first to prosecute further my researches. But, though the discoveries of M. Zengler and myself are almost identical, they are not entirely so, as the following brief account of some of my experiments and their results, taken from notes made at the time, will show.

About 3 P.M., August 6, 1886, I exposed to the sun's rays for two minutes a piece of paper, coated on one side with a phosphorescent sulphide of calcium paint, and covered on the same side with a thin sheet of bronze metal having several letters, 1½ inches long, cut, stencil like, through it, to show the calcium sulphide. I then immediately transferred the phosphorescing paper, with the sheet metal attached, to a closet illuminated only by a feeble orange light used for photography, and covered

the letters with a piece of "Eastman's bromide paper (A)." This sensitive paper was then covered with several layers of thick brown paper, and the whole was lightly pressed together by my hand for about one minute. I then removed the sensitive bromide paper, and proceeded to try to develop an image of the phosphorescent letters.

The ordinary oxalate of iron developer was used, and in about three minutes I had the satisfaction of seeing the letters come out strongly in black on the white ground of the paper. This picture was impressed by the phosphorescent rays alone, all other lights having been rigorously excluded.

It is, therefore, evidently possible to expose a sheet of phosphorescent material to light beneath an ordinary photographic negative on glass or paper, or *originally in the camera*, and then, some time afterward, to print from this dimly radiant material on sensitized silver surfaces.

Aug. 7, 1886. In connection with my memorandum of yesterday, I have to add that, last night, I succeeded in obtaining, after five minutes' contact with a more sensitive gelatino-bromide paper, a good impression of the same object experimented with in the afternoon (*i. e.*, the phosphorescent letters), *upward of seven hours after the calcium sulphide had been exposed to sunlight*, it having been shut up meanwhile in a perfectly light-tight box.

Aug. 8, 1886. Referring to my memoranda of Aug. 6 and 7, I have to record the following experiment which I made

to-day, and which shows that the phosphorescent radiation from calcium sulphide, in the dark, will pass through a piece of greenish tinted window glass and impress a positive picture of an ordinary photographic negative on silver sensitized paper or gelatine films.

About noon, I exposed a piece of glass, painted on one side with a luminous paint of calcium sulphide, to the sun for several minutes, the calcium side to the sun. I then conveyed it to the photographic dark room, and after a few minutes laid the phosphorescent plate, calcium side up, on the table, and placed thereon a photographic negative, on glass of the usual greenish hue of common window glass, the gelatine side of the negative being uppermost. On this I put a piece of "Eastman's bromide paper (A)," with the sensitive side down next to the negative. Over this was placed a pad of several thicknesses of brown paper, and on top of all a small weight. I allowed this to remain five minutes. The sensitive paper was then removed, and I examined it for a moment in the weak orange light of the closet. No change was perceptible. This paper was then treated with solution of oxalate of iron, as usual, for developing a picture on such paper after exposure to ordinary light. In about ten minutes a good *positive picture* of the photographic negative was developed, and it was subsequently fixed in the usual way with sodium hyposulphite.

After those memoranda were written, I made, in August and September last, numerous other experiments (of which I have the records) with phosphorescent radiation, instead of ordinary light, for photographic printing, and obtained some excellent pictures in that way, just as good, I may say, as I can make by lamp or daylight.

I have found that it is not necessary to expose the phosphori always to daylight to render them fit for use in printing through negatives, but that a *few seconds'* exposure to any brilliant artificial light, as that from gas, magnesium, or electricity, will answer. And I have also found that numerous prints can be made, on very sensitive films, after a single exposure of the phosphorescent substance to light.

I deduce from my experiments that glass of the color, kind, and thickness generally used for gelatino-bromide dry plates intercepts fully two-thirds of the chemical radiations that would fall on a sensitive surface in direct contact with the phosphorescent substance (calcium sulphide).

The interposition of paper (like that used for negatives) rendered translucent, between the phosphori and sensitive film prevents the passage of fully three-quarters of the actinic rays.

Therefore, when such paper and glass are interposed together, not more than one-twelfth of the phosphorescent rays reach the sensitive film.

Nevertheless, when using a glass negative and "Eastman's bromide paper (A)," a few minutes' (three or four) exposure to a card covered with paint of calcium sulphide will make a good impression, if the card has been only a short time away from a bright light.

A translucent paper negative, on "Eastman's *negative paper*," requires about the same exposure (three minutes) to produce a good *positive* on the same kind of very sensitive "negative paper."

Positive pictures on glass (transparencies) can also be well printed by phosphorescent radiation.

Negatives on glass can have the phosphorescent substance, whether calcium, strontium, or barium sulphide, spread directly on the glass side if desired.

U. S. Marine Hospital, St. Louis, Mo.,  
Nov. 13, 1886.

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### PHOTOGRAPHING AT NIAGARA FALLS.\*

It may seem the height of presumption on my part to grapple with so vast a subject as Niagara; but while in Buffalo last summer, I was enabled to make frequent photographic trips to the Falls, and, therefore, trust that a few words will not prove uninteresting. For the benefit of those who may contemplate a trip in that direction, I will

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\* Read before the Photographic Society of Philadelphia, by Charles R. Pancoast, March 2, 1887.

endeavor, briefly, to describe some of the most accessible and interesting views to be obtained.

Since the opening of the State Reservation, and the consequent demolition of the unsightly mills and buildings that formerly marred the beauty and grandeur of the place, many views, hitherto inaccessible, have been opened up. Primitive simplicity, unaided by art, is now one of the great features of Niagara, and one thoroughly appreciated by the lovers of the picturesque. Another feature of the Reservation being the almost entire freedom from "fees," and the annoying solicitations of hackmen and guides.

Those familiar with the geography of the Niagara River are aware that the Falls face the north and the northeast, consequently a large proportion of the views must, of necessity, be made against the light. This fact, of itself, renders the photographing of the swiftly rushing waters an unusually difficult task. The best time of the year is undoubtedly in the month of June, when the early foliage is at its prime, and before the excursion season has fairly opened. I speak from experience on this point, having suffered from the annoyance of unwelcome "figure compositions" suddenly presenting themselves in the field of view.

At that season, the sun being in its most northerly position, the light upon the Falls is at its best. Ordinarily, a bright sun is best adapted for general work, although it must be remembered that, in views of the rapids, especially from the American side, an overcast day will give much the softest results. This, I may say, is true of any view in which there are harsh contrasts.

Two great enemies of the photographer at Niagara are wind and spray. While the former holds sway, it is useless to attempt any work. The latter is by no means a constant quantity, and successful views of the Falls proper can only be made when it is at its minimum. Attempts to render what appear to be fine spray effects, result only in hopeless fog. My experience has been, that it is far preferable for the casual visitor, having but a limited time at his disposal, to eschew the difficult subject, unless under the most favorable circumstances,

and confine operations to views readily attainable, and such "bits" of picturesque scenery as may strike his fancy.

Photographing the Falls from below is attended with much risk and discomfort, that even the most ardent amateur may be excused from making the attempt; especially in this case, when the results obtained, even under the most favorable circumstances, are not commensurate with the time and labor expended. I have been informed by some of the resident photographers that, during the year, there are indeed very few days on which really good pictures of the Falls from below can be made. It is useless to attempt photography at Niagara without an exposing shutter capable of giving exposures from one-tenth to one one-hundredth of a second. My own experience being that with very rapid plates the best results were obtained by using as large an aperture as was consistent with fair marginal definition, and as rapid an exposure as any shutter would produce. I am convinced that a larger amount of detail is obtained in this way than where a slower exposure is made with a smaller stop. The extreme darkness of the foliage about the Falls is such as to render the developing of very much detail almost an impossibility, especially so when contrasted with the brightly illuminated water. Plates showing a decided tendency to "softness," will, therefore, give better results. In order to proceed systematically, the photographer should commence in Prospect Park, as early in the morning as possible, and gradually work around over Goat and Luna Islands, finishing with the Sister Islands about noon.

Views from the Canadian side are best made in the afternoon. I may remark here that neither the American nor Canadian custom officers stationed at the new suspension bridge, make any objections to photographic apparatus, unless, however, the enthusiastic operator is sacrilegiously inclined, and desires to profane the Dominion Sabbath, then the "blue-nose" official will doubtless interfere. The virtuous Canadians evidently draw the line at photographing on Sunday. On clear days, when the Falls are comparatively free from spray, some very fine effects are to be had from a point

near where formerly stood Table-rock. From a point on Clark's Island, about three-quarters of a mile above the Horse-shoe Falls, a fine view of the Canadian rapids can be made. Late in the afternoon, when the shadows fall obliquely, the effect of the turbulent water is superb. For views of this character, it will be necessary to increase the speed of the shutter considerably, otherwise the swiftly moving water in the foreground will be so much blurred as to spoil the general harmony of the result.

To one fond of engineering subjects, the cantilever bridge of the Michigan Central Railway will prove both pleasing and interesting. The best point from which to make it, being what is known as the "Old Maid of the Mist" landing, about half a mile above, and reached by a good road down the bluff. The walk along the bluff below the town of Niagara Falls, after passing the mills, is picturesque in the extreme, and affords some excellent subjects. I did not attempt any photographs of the Whirlpool Rapids, and, therefore, cannot say when and how the best views are to be made. From casual examination, however, I should say that the Canada side, after about one o'clock in the afternoon, would offer the most advantages. Having thus, in a general way, given some idea of the photographic work to be made about the Falls, I must say that, in a field so rich and varied, it is impossible to establish any given route or class of subjects; let the results proclaim at once the individuality of the artist.

Buffalo offers but few inducements to the pictorially inclined. The ruins of Fort Porter, on a high bluff overlooking the Niagara River, and those of Fort Erie, on the Canada side, immediately opposite, are subjects which, if not picturesque, are of great historic interest.

The government breakwater, at the mouth of Buffalo Creek, offers favorable opportunities for instantaneous views of the lake marine. To those who may be interested in technical points, I will say that the pictures exhibited were all made with a Ross Rapid Symmetrical lens, of  $7\frac{1}{2}$ -inch focus, using an aperture of F. 16. The shutter used was one of my own con-

struction. Plates by Cramer, developed with a pyro and soda developer, prepared in accordance with a formula given me by Mr. C. H. James.

### AN ALBUM OF CRIMINALS.

A SELECTION of the photographs of over two hundred of the professional criminals of America has been arranged in album form and published by Inspector Thomas Byrnes, Chief of Detectives of New York City. It is accompanied by the pedigrees and records of the rogues pictured, and of over 300 others who belong to the "profession." The pictures have been collected and the information gathered during the twenty-three years continuous service of the author amid unusual opportunities, including two International Exhibitions. They represent a strange people, but by no means altogether such as the acute photographer would always set down from those who present themselves to his camera, as "rogues."

The book, or album, is of royal octavo size, 433 pages; strongly bound in library style, and is a really handsome volume. The portraits are card size, arranged six on a page, numbered, and named. They were printed by the gelatine process. Males and females are included in most variable assortment, of bank burglars, sneak thieves, forgers, hotel and boarding-house thieves, house thieves, store and safe burglars, shoplifters, and pick-pockets, confidence and bunco men, receivers of stolen goods, sawdust men and frauds in horse sales.

It is the most choice and select collection of scoundrels ever gathered together.

The frontispiece is a full-page portrait of the author (a picture the rogues who purchase the book will value) and the initial plate represents a rogue being photographed while held, contorted, by four detectives. The photographer very wisely stood out of sight.

The literary work is very entertaining, and shows how great must have been the patience, and how wonderful the fund of information possessed by the acute author.

The chapter on "Why Thieves are Photographed," contains a great many interesting points. In fact there is a grim interest in the whole work. It should be placed on



every first-class photographic reception-room table for the public good. It will not only entertain and divert during the tedium of waiting one's turn, but it will help to spread information concerning a mischievous set of people, and tend to discourage their business.

The publication price is \$10.00. See advertisement.

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### THE IDEAL IN ART AND ITS RELATION TO PHOTOGRAPHY.

BY E. K. HOUGH.

#### III.

GIGANTIC as have been the onward strides of photography, wonderful as has been the improvement of its followers—especially since the use of dry plates—yet, I presume, there is no photographer so bold or so complacent as to maintain that it has reached anywhere near its climax of development in any branch; none but what will readily admit that it has greater possibilities than any he has achieved.

And most of them partially realize, and will admit, that no form of art ever had so many voluntary contributions from the amateur and non-professional world; none other ever had the benefit of so much gratuitous and intelligent thought. So, too, none has had to contend with such wide-spread diffusion of technical knowledge, and such general competition in technical skill.

Painting, engraving, etching, carving, sculpture, none of them ever had so many to think and study for them; and none ever had so many to practise them, with more or less success.

The great competition is not altogether a cause for gratitude, yet if "a noble emulation is the spur to greatness," or if "from those to whom much is given much shall be required," it logically follows that the demand upon professional photographers for something worthy of their art and their time, is greater now than it has ever been before upon the followers of any art since history began. Every new chemical discovery, giving them increased facility of execution; every optical adaptation giving

them increased power; every improved mechanical appliance giving them more certainty and ease of working, makes constant and direct demands upon their pride and their ambition to keep abreast with the highest possibilities of their art in their time.

And this demand is not ignored by any means; for, despite hard times, low prices, and excessive competition, there is a noble emulation abroad, inciting to greater efforts for higher possibilities than any yet attained, and while the highest and most renowned photographers are free to admit that they can and ought to do better, the lowest and most obscure are feeling a power in their hands, and a spirit in their hearts that impels them into the race of progress, with a resolve not to be wholly distanced by the best. Witness the many societies springing up, and well attended, in all large cities; the many publications well written and well read everywhere; and, most of all, the photographic exhibitions all over the world, where photographers gather, not wholly like great fairs, to meet their stockdealers and purchase new supplies, nor yet like lotteries for commercial favor, where they can by dexterous management or lucky chance get some token of superiority to take home and advertise upon for mere commercial advantage; but largely with an honest desire to compare their work with that of their comrades, and learn any way to improve their own. Commercial advantage is desirable always, but when that is the chief motive, art must suffer. Accepting this evidence of willing attention toward all suggestions regarding art that can be of use in photography, I will endeavor to elucidate the theory of "ideals."

But photography is wide-spread, reaching into almost every field in the realm of art; we cannot follow it everywhere, so in what I have to say I shall confine myself mainly to portraiture for two good reasons. First, because what little I know about art is mostly limited to that department, and secondly because I consider it one of the most difficult and most important, believing that "The highest thing that art can do is to set before you the true image of the presence of a noble human being." *"It has never done more than this, and it ought not to do*

less." So says a great art critic—the italics being mine.

And again he says: "You remember my statement that art has never done more than give the likeness of a noble human being. Not only so, but it seldom does so much, and the best pictures exhibited are all portraits, or groups of portraits, often of very simple and nowise noble persons.

"You may have much more brilliant and impressive qualities in imaginative pictures; you may have figures scattered like clouds, or garlanded like flowers; you may have light and shade as of a tempest, and color as of a rainbow; but all that was child's play to those great men, though it is astonishment to us.

*"Their real strength is tried to the utmost, and, so far as I know, it is never brought out so thoroughly as in one man or woman, and the soul that is in them. So that in order to put before you the best art possible, I am obliged even from the very strongest men, to take the portraits."*

Again the italics are mine, and probably all artists would not fully agree with him; but these words from such high authority as the author of *Modern Painters*, give some idea of the necessary difficulty and power involved in portraiture by any method which endeavors to compass any of its higher possibilities. For, mark you, that modifying sentence, "*the soul that is in them*," has a world of meaning, which many art teachers contend will forever separate photography from such portraiture as is therein meant. And it is doubtless true that photographers generally have but dimly realized its value and importance in their art.

But they are coming to feel that something more is needed to distinguish the "art" from its "mechanism," the "artists" from mere "workmen" in photography; something more than the difference in style and cost of studios, or the difference of prices charged; something more even than the difference in the size of pictures taken or the clearness of chemical effects; something which cannot be learned in twelve lessons for twenty-five dollars, nor obtained ready made from the stock-dealer; something which is like electricity, powerful though inponderable, which is in the soul of the

artist, and puts its impress upon all his work, so that, although not demonstrably evident, perhaps, in each and every picture, yet gives an undeniably higher average, and more intrinsic value to all he produces.

The meaning contained in that sentence, "the soul that is in them," with its context, involves all that is needed, and all that I would say; for upon the same general idea, my theory of "ideals" is based, and how to make its application to every-day photography so clear that the youngest and slowest beginner who has any pride in his art, or any ambition to improve, may get some help from it, is the problem I must try to solve.

Bear with me, the prologue has been too long, I admit, yet I shall not promise to make it up by cutting short the play.

FREDONIA, CHAUTAUQUA CO., N. Y.

### ARBITRATION IN THE PRICE DISCUSSION.

OUR war is practically ended, for now things are well defined, and we know just what the others of our craft are expected to do who reside in this town.

Although the joint-board, which is composed of representative members of different local assemblies of the K. of L., did not accept our price-list in full, as did our local, yet they acted as any arbitration committee would when there was a difficulty to settle.

There being three of us in this craft who were agreed as to prices, and only one who would not agree (although a union man in name) to anything that would bring us on a fair and equal basis, so far as man's power was able to accomplish, it did make a price to secure that end, which was, adopting the middle price between the unsettled points.

As one would not agree to more than three dollars a dozen for any cabinets that he was called upon to make, and three men agreed that five dollars a dozen was little enough for first-class cabinets, it only remained for them to split the difference, and make a price that should constitute the point where "scab" work should commence.

Thus, you see, they were impartial to either side of the controversy, and have established that which will in time work good for the photographic fraternity here, if not

elsewhere. So far as regards us four, if either of us should make cabinets (size of head over 1½) for less than four dollars a dozen (although we have the privilege of getting as much more as we can) we shall be declared in the craft we represent as wronging our brothers.

Everything else that we three have agreed upon concerning the regulation of our business was accepted without any reserve, and we will not be considered "scabs" even when we fight our unruly man with his own weapons, as well as those of the public who are unwilling to accord a fair day's pay for a fair day's work. But in no case can we make anything over 1½ head in cabinets for less than four dollars a dozen without being called a "scab," and being dealt with accordingly, which means the non-patronage of all good union men and women. It only remains to be seen who will be the first victim to voluntarily give himself over to the mercies of the court.

Then, another thing, if a union man is seen to patronize a shop that is declared to be a scab-shop, he will be dealt with the same as though he were the scab committing the offence against his craft.

I have used the phrases used by union men, so that all may be plainly understood as to what is meant. "Scab," meaning a person who will take the place of another by cutting under, etc., when they are masters of their art, or who is unwilling to live under the golden rule.

I am so glad that we have come to a settled condition of things here, for no matter what the rest of our photographic craft all over the world may do, our course is settled.

Yours for the advancement of photography here and everywhere,

M. H. ALBEE.

MARLBORO, MASS.

## QUESTIONS TO THE CRAFT.

### QUESTIONS.

1. Are you making large portraits direct in the camera, *i. e.*, using a larger lens than 14 x 17, with large dry plates? If so, what is your method of lighting and manipulation, and your experience as to the quality

of your results compared with enlargements from small negatives?

2. Do you obtain as satisfactory results, in portraiture, with very rapid plates, as you do with slower ones?

3. What is your most successful method of development of rapidly exposed plates?

4. Have you found an increase of business and profit with the increased facilities for making large work more expeditiously, adopted by you?

5. What has been your experience, both in practical results and in the acceptance by the public, of bromide enlargements?

6. What with platinotype prints?

7. Do they increase the revenue from your stock of negatives?

8. Please detail some of your experiences in making pictures of children.

9. In printing dry-plate negatives wherein does your treatment of them vary from your practice with wet plates?

10. What variations do you make in your manipulations in cold weather from your practice in the mild season?

11. What are the prospects for the coming year?

### ANSWERS.

1. I make nothing larger than 11 x 14 direct, and very few of those, because of their necessarily "high" price, which seems to be a decided objection in this locality. I adopt similar methods of lighting, etc., to ordinary work, and believe the results are equal, but not superior to bromide enlargements.

2. Yes; and in the case of children much more so.

3. In order to answer this question satisfactorily, and as the majority of my exposures are rapid, I shall have to digress slightly and state that I am using a developer combined by myself from several formulas. The basis of which was obtained from Thos. Pray, Jr.'s article in *Mosaics* for 1887, a part from Mr. Estabrookes formula for Stanley plates, and a little from the *Photographic Times Almanac*. It is as follows:

#### No. 1.

Water . . . . .	6 ounces.
Sulphuric Acid . . . . .	10 minims.
Pyrogallic Acid . . . . .	1 ounce.

## No. 2.

Saturated Solution Sulphite Soda	6 ounces.
Saturated Solution Sal Soda	6 ounces.
Yellow Prussiate of Potash	192 grains.

To develop an 8 x 10 or smaller plate (Cramer lightning), normal exposure, I take 4 ounces of water and add 1½ drachm of No. 1, with which I flow the plate. I then add 1 drachm of No. 2 to my graduate, and after a few moments pour from my tray into the graduate and then back upon the plate, which process thoroughly mixes the developer. The image appears slowly, but full of detail and brilliancy. Yellow prussiate of potash giving the latter desideratum as well as body. Overexposure is treated to a little bromide; and drop-shutter work is first immersed in water containing a few drops of No. 2, afterwards using the developer straight; that is adding both Nos. 1 and 2 before commencing.

4. Decidedly: because the public have more confidence in a man who produces large work, believing him more capable than his less energetic neighbor.

5. Bromide enlargements are worthy of all praise. As to their practicability there can be no question, and their acceptance by the public seems assured. Our local papers have spoken of my exhibits as "fit to be classed among the best works of art."

6. Have had no experience with the process.

7. No: Although I think eventually that I shall be able to convince some of my former patrons to have bromides.

8. My experiences with children in the main are most satisfactory. I endeavor to secure their confidence and that of the mother. Arrange everything, even to focussing the instrument (on the chair or other accessory) before getting them into position, and then with some strategetic manœuver like "peek-a-boo" from behind the camera, or equally interesting childish pãstime, succeed in catching their prettiest expression. I use a pneumatic shutter, and make the exposure as quick as I can compress the bulb. I use a broad and open light and with judgment in the development get a soft and pleasing negative.

9. My experience with wet plates, aside

from ferrotypes, has been very limited, therefore am unable to answer this question advantageously.

10. Do not vary my manipulations very much. Look out for my temperature. Silver my paper a little longer in cold weather, and generally print two or three days before toning. I know this would not answer in large galleries, but I am one of the "small fry."

11. The prospects for the coming year are glorious. I know that the most of us are compelled to work for "ruinously low prices," as one brother has forcibly put it. I know of the anxious days when sitters come not. I too know of the sleepless nights, the hard pinching, the rigid economy, the petty scheming to make both ends meet. But what of that? Do we not hope?

And what more glorious than hope? Are not the prospects for a richer experience glorious? Are not the prospects for a better appreciation, by the public, glorious?

Is it not glorious that summer is coming, with its balmy airs, its fragrant perfumes, its caroling birds, and all of natures marvelous beauties, bringing with it an increase for our patient, plodding craft? Is it not glorious that our Heavenly Father is watching over us with a love beyond comparison, and that the coming year takes us one step nearer to our eternal home. Let us then be thankful, and with a merry heart and cheerful countenance, welcome each and every hour in this coming year as a glorious prospect.

A. C. AUSTIN.

NASHUA, N. H.

## THE "TONGS" FINGER PROTECTOR.

BY O. S. MARTIN.

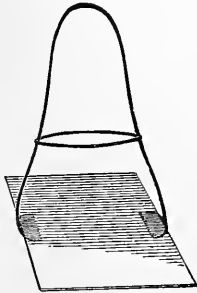
Fog, flatness, want of detail, thinness, and similar troubles, the results of combinations of errors of all sorts, do not exhaust the catalogue of "manipulating miseries" to which the amateur is subject. He may avoid the quicksands of over- or under-exposure, too much alkali in developer and other things of a kindred nature, and yet be shipwrecked before he can get into port.

Who of us has not watched with wonder

the singular manner in which a certain image came out in spots, and were non-plussed for the explanation, perhaps, until we discovered that the plate had been put into the dish film side down? Who of us, anxious to watch the progress of a valued picture during development, has not lifted it for examination once, twice, but third time, by a slip of the thimble or some other lifter ploughed a furrow through the film? Who of us has not made his negative at the expense of cut fingers, smarting from the absorbed developer? Who of us has not carried about with us hands suggestive of jaundice?

Having rigged up a little contrivance, the use of which, since last summer or spring, has proved such a comfort to me in its tendency to obviate the evils alluded to, I thought a description of it might prove acceptable to others.

Bend a stout wire (thickness depending upon size of plate to be held) into the shape of the letter U (inverted), spreading the lower part of the prongs as shown in the cut. Next, bend two thin and flat pieces of



metal that, when a plate is inserted between the jaws or feet of the "tongs," the surface of the plate and that of the feet will coincide. Solder the side of these feet to the end of the wire, and having placed a plate in position, slip a stout band of rubber downward until the tension is strong enough to grasp the plate *firmly*, and you will have a little piece of apparatus, with which (if your experience should prove like mine) you would about as soon think of dispensing as with your pyro. The readiness with which a plate can be lifted for examination and placed in the developer is self-evident on a glance at the cut.

Having once placed the plate in position, film side up, there is no need for caution, lest, in the after-manipulations, it should get reversed, for the simple reason that it is impossible for this to happen. Neither is there any occasion to guard against the thimble lifter or finger nails carrying away a part of the film, for no other "lifter" is, of course, required.

Nor is there any necessity for staining or cutting the hands during development. Indeed, if one chooses to be sufficiently careful, it would seem to be possible to develop a plate without getting the fingers moist, or even touching the plate at all.

After developing and washing, the plate can be set aside to dry (on end), the lifter still holding it fast, and, of course, causing it to *incline*, with the film side inward (or undermost), and therefore less exposed to dust than if racked. Should the plate be allowed to fall, the wire goes into it and reduces liability of breakage.

I explained what I wanted to a locksmith, and he readily made me two each of two sizes (for 3 x 4 and 5 x 8 plates) for the reasonable sum of fifteen cents each; though, of course, it would be more convenient if they could be bought of the dealers.

P. S.—Since writing the above, the engraving has been sent me. I find that the engraver has erred in his drawing at a point which seems to me important. You will notice that the cut represents the foot as a flat piece of metal, fastened pretty much at right angles, to the end of the wire. This foot-plate is to be bent at a certain angle, giving an upright side, which is to be soldered to the leg, thus insuring a good grip on the plate, by which it can be handled pretty much at will. If made according to the cut, it could be lifted *vertically*; but there being two mere *points* of contact between the plate and legs, I fear it would not answer otherwise. Please have drawing corrected, or else in footnote call attention to inaccuracy.

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### PRACTICAL POINTS FROM THE STUDIOS.

A SIMPLE method of restoring negatives which have been strengthened with mercury

and have become yellow, making them again fit to print, is as follows: The plate must be freed from varnish by using spirits (alcohol), and the negative laid a short time in water; then spread over with sulphuric ammonia (on account of the disagreeable smell, this should be done in the open air), and in a moment the negative appears in its original strength. Good rinsing and washing is of course necessary.

SINCE writing my answer to "L. A. B.," I find that there is a firm in New York that sells "etching outfits" with instructions that will enable him, by some practice, to produce the common kind of illustrations used by such papers as the *Philadelphia Press*, *Item*, etc., and it possibly may, in time, if he gets practice and uses his wits thoroughly, enable him to do a better grade. I can tell him though, that there is little money in it, except on a large scale. The *Philadelphia Press* office has an outfit and no doubt he can get particulars from them. Of course he must use pen drawings.

TO REPAIR PHOTOGRAPHIC DISHES.—To repair, with marine glue, photographic dishes made of glass and wood, the following has been recommended by M. Chabannon, of Ganges. Make a rather thick varnish of marine glue dissolved in a mixture of ether, alcohol, and chloroform (and even methylic alcohol, adding to it a little gum lac), and pour it in a corner of the dish allowing it to run from one angle to another, until entirely dry. Several coats may be placed one over the other, as the evaporation takes place. This varnish is very resistant and with its use old dishes can be utilized. — *Journal de l'Industrie Photographique*.

LESSONS OF MR. BOTHAMLEY UPON ORTHOCHROMATIC PHOTOGRAPHY.—Mr. Bothamley, Professor of Chemistry and Photography at Leeds College, has given a series of very interesting lessons on the above subject. These lessons are now being published in the *Photographic News*. The author attributes to Dr. Vogel, in 1873, the discovery of the special properties of tinted plates; at that time he made use of collodion plates. His experiments were afterward confirmed

by those of Major Waterhouse, Mr. Carey Lea, Captain Abney, Becqu rel, Ducos du Hauron, and others. Then came the new process with gelatino-bromide, and on these plates, the first orthochromatic experiments did not succeed. In 1879, Mr. Ives, of Philadelphia, made known a practical process which was successful and is still in use; it consists in tinting the plates with a solution of chlorophyl, a green coloring substance that Becqu rel was the first to use for this purpose in his scientific experiments. It is now seen that much is to do in the study of the action of the different coloring matters used, and a new field is opened to experiment whose limit no one at present can define. Among other interesting facts mentioned by Mr. Bothamley we remark this one, which relates to artificial light: We know that the light obtained from gas or oil contains a smaller number of blue and violet rays than the light of day; and as the tinted plates are more sensitive to the yellow rays than on the non-tinted ones, the first are much more sensitive to the artificial light of gas, or oil, than are last. This fact has special interest for the towns in the north of Europe, in which artificial light is enormously used during at least four or five months of the year.—Dr. PHIPSON in *Le Moniteur*.

ASTRONOMICAL PHOTOGRAPHY; CREATION OF A PHOTOGRAPHIC OBSERVATORY.—We know that lately astronomical photography has made gigantic strides, and the march of progress is far from ended; we are not surprised, therefore, to see in the last number of *The Nineteenth Century* a learned article from the pen of Mr. A. Common, one of the most distinguished astronomers of London, giving a history of this branch of our art and a sketch of its future progress. In this article, Mr. Common pleads for the establishment in England of a *photographic observatory*, either by private enterprise, or under the auspices of the Government; as to the Government, it is not to be counted upon for this purpose; see what the scientific voyage of the *Challenger* has cost the nation; the publication of the results, which is not yet completed, has already cost, so we have been

told, more than 400,000 francs. It is, therefore, to the rich amateurs of science and photography, that Mr. Common should address himself in order to realize his project of a photographic observatory, and we cordially wish him the success that he deserves. Besides the building there will be required a reflecting telescope with a silvered mirror of the greatest possible size, to work on the "nebule," as says the author, then a large glass for lunar and planetary reproductions. There should also be appliances for stellar photographs and for spectroscopy.—DR. PHIPSON in *Le Moniteur*.

REVERSIBLE PELLICULAR PAPERS FOR CLICHÉS IN GENERAL, AND NOTABLY FOR PHOTOTYPY.—There is an idea that has made rapid advances for some time, and to the success of which you have, personally, contributed much, namely, gradually doing away with silver prints, and substituting for them durable positives, not liable to disappear after a few years. As long as the process now most in vogue is used, that is to say, of albumenized paper, it will not be possible to obtain permanent results, and photographic art will not be able to leave unfading documents, neither to our national archives or to our private collections, documents that may be consulted in the future. We find, in reading the numerous works that you have published on the making of positive prints, that you always have in view this idea—the production of results that time will respect.

Your two treatises on "Carbon Photography and Phototypy," give all the processes and all the manipulations necessary for producing excellent prints, fully equal in their unfading quality to those made by any other mode of printing. There are differences, however, between the two processes: carbon gives, doubtless, charming and permanent prints, but in order that they should be made with care, their number must necessarily be limited. For this reason we place far ahead the second process, not yet sufficiently known, and which furnishes in so short a time such a quantity of solid and durable prints. If it were really known how easily it is to simplify photography, how many would delight in practising it? Un-

fortunately, it might be supposed that for many amateurs, and even practical men, this process is enveloped in mystery and bristling with difficulties; let these persons do as we have done, and carefully read your work; let them first learn the theory of the process, to work it at least on a small scale, and we venture to say that they will be greatly surprised at the results obtained.

What we especially wish to insist upon here is, that the idea has advanced, as glass has gradually been superseded by the flexible processes for making negatives, in a parallel manner, so to speak, albumenized paper is replaced by carbon, and especially by the fatty ink processes. To-day many photographers, and even amateurs, confine themselves to carbon. Numerous establishments are using phototypy, and some of them, not contented with their own, are taking in outside work. But it may be said that to make a fine print with fatty inks, reversed clichés are necessary, and there are not many products in the trade giving clichés that can be impressed on the back. I may mention, however, the Attout-Tailfer plates, and, if you will allow it, the Baligny Pellicular paper, specially prepared for this use in the establishment of the Messrs. Lumière. This paper has been in use for the last five years, but it is really only during the last eighteen months that the public has recognized its usefulness in making photographic clichés. We ourselves had neglected it for some time in order to give all our care to the manufacture of flexible plates. But now that the process of manufacture of this last has been thoroughly established, now that the transparency and the rapidity of this product leave nothing to desire, we had the time to retrace our steps and again take up the manufacture of reversible pellicular paper, in order to make it as perfect as possible.

We will not speak here of the emulsion; all know the Lumière emulsion. It is as good as the best known. We wish especially to speak of the improvements in the manufacture of pellicular paper, and of the facilities now offered for its use.

Thus, the paper is laid absolutely flat in the boxes containing it, and consequently it spreads admirably in the frames, especially if we make use of simple frames, or those

opening in the middle, like the old double or English frames. With these a mahogany mould is placed in the frame to stretch the sheet. Over this mold the sheet is placed, and finally another mahogany planchet, so that the edges of the sheet are caught between this planchet and the leaf of the frame. When the frame is filled it is closed and the shutter opened, allowing the mahogany mould to fall, and which is again used in filling the other frames. It suffices, therefore, to have as many planchets as there are frames, in order to use this system, which gives great evenness, and especially mathematical accuracy. When the cliché is finished it is simply dried between sheets of bibulous paper; then, when dry, the pellicle is detached, which can be used either with or without transfer, as may be necessary. The transfer is made in the most simple manner, and very quickly, on a sheet of gelatine, using a gelatine roller. This transfer may be made either to the right or to the left of the cliché, giving at will either an opaque or a transparent cliché. Moreover, when a transfer is made in one way, nothing prevents, even a long time afterwards, undoing this transfer to make it again in the opposite direction; the operator thus being able at will to make prints with fatty inks or with silver salts. This is our most recent improvement. As the transfers are made on gelatine, so they may be made on glass in both directions, giving opaqueness or transparence at the will of the operator. They may also be made on metals, on wood for engraving, finally on all bodies, and in all these cases with the strongest adherence.

In regard to the quality of a cliché, it may in everything be favorably compared with clichés on glass. As regards delicacy and sharpness, I do not think there is anything to say, as the pellicle being made mechanically no accidents are to be feared in the film, which is even everywhere.

The paper is adapted to all kinds of work; it is rapid enough for instantaneous pictures, but it may also be exposed for a long time, and it can be used for making all kinds of industrial reproductions. For this reason it is very suitable for projections, transparencies on glass, and stereos, in which it is made

to work by contact on the original cliché; now, we all know that a sensitive film exposed by contact, has a very long exposure. Notwithstanding this, the pellicular paper gives all the desired intensity without any veil. Finally, we may add, that the particular advantage given by the use of this paper is, that it lends itself better than any other sensitive surface to carbon printing or phototypy. In the first case but one transfer is to be made, and we know that a simple carbon transfer is very easy; in the second case, our new paper gives perfect contact, and, therefore, absolute sharpness in printing with the press. For the present we confine ourselves to what precedes, intending to give, in a little pamphlet shortly to appear, the manner of using pellicular paper, as well as its numerous applications.—*Paris Moniteur*.

A NEW DEVELOPER.—In the communication that we had the honor to make to the French Photographic Society, at the meeting of February 4th, we think to have shown that the action of light, however weak or short it may be, invariably produces upon sensitive photographic films a latent and durable modification of the haloid salt of silver which they contain. Now, the most powerful developers hitherto used, do not possess the property of developing the latent images produced by feeble actions, and we understand the great interest attached to the discovery of more energetic developers.

M. Meignan, pharmacist at the Asylum at Bron, having suggested to us the idea of making a study in this connection of hydrosulphurous acid, we undertook a series of experiments which show that this compound possesses, in a high degree, the property of causing the latent image to appear.

We know that hydrosulphurous acid, which, as yet, has not been isolated in a pure state, and which was discovered a few years ago by Mr. Schutzenberger, may be obtained by the action of zinc on an aqueous solution of sulphurous acid. The liquid is first of a yellow color, due to the formation of hydrosulphurous acid, then soon loses its color owing to the decomposition of this last, and there is then formed hyposulphite



of zinc, together with a deposit of sulphur. This rapid destruction of the hydrosulphurous acid, favored by contact with the air, requires great care in the use of this reducer, and the development to be made at the commencement of the reaction.

This condition is rendered indispensable by the fact that the products of oxidation, which are formed during the operation, possess the property of destroying the latent image. In consequence, the best results are obtained by first plunging the plate into a saturated solution of sulphurous anhydride, and in throwing afterward into the liquid the greatest possible quantity of zinc. Unfortunately, the nausea produced by the inhalation of sulphurous gas, the heating of the liquid, and the production of a veil of sulphurate of silver due to the formation of free sulphur, offer considerable obstacles to the practical utilization of this developing process. It is, nevertheless, true that the results thus obtained surpass those given by the developers now known, and are an incontestable proof of the powerful energy of this new reducing agent, the effects of which seem to confirm experimentally the conclusions that we had previously formulated. As might have been foreseen the alkaline hydrosulphites possess, from a photographic point of view, properties analogous to those of hydrosulphurous acid, but in a much less degree. We believe that we cannot pay too much attention to the seeking for more active agents, which would doubtless enable photography to become a more powerful mode of scientific investigation, and to multiply its already so numerous and fecund applications.—AUGUSTE AND LOUIS LUMIERE, *Moniteur*.

**TO CUT DOWN AN OLD JAR OR BOTTLE.**—Wrap pads of wet blotting-paper around it, leaving a sixteenth-inch space between them at the place you wish the jar to be cut off. Apply a small blow-pipe (or small gas) flame, and the glass will crack all around at the open space.

**PASTE FOR METAL, GLASS, OR WOOD.**—

Gum Tragacanth . . . . .	1 ounce.
Gum Acacia . . . . .	4 ounces.
Water . . . . .	1 pint.

Dissolve, strain, and add 14 grs. of thymol suspended in 4 ounces of glycerine; finally, add water to make two pints. Shake before using.

SHELLAC cement is useful for an infinity of purposes—as a glue, cement, or varnish, for repairs, dark slides and printing frames, etc. Dissolve shellac in methylated spirit (alcohol) or wood naphtha—thinning down according to use to be made of it.

### INFLUENCE OF TEMPERATURE UPON THE CHEMICAL OPERATIONS IN PHOTOGRAPHY.

EVERY manipulator knows what great influence the temperature has upon the success of his experiments, and how failure is often entirely due to unfavorable relations of temperature. Nowhere is this so strikingly shown as in photography, which consists principally of optical and chemical experiments. Not only do dilettanti and amateurs, who pay too little heed to this important factor in their work, fail in this regard, but professionals also. They often go boldly to work without having regulated, at least to some degree, the temperature of their studio, and that of their laboratory.

If the heat is not so great as to cause the perspiration to pour off one, or the cold so intense that the fingers turn to icicles, then they go merrily to work. No wonder then that their results are faulty, or that they fail entirely. Not only the exposure and development of the plates, but also the silvering of the paper, and above all the toning of the copies must take place in even temperature, not too warm and not too cold. After many trials, I have found that a moderately warm room, say about 15°, is most suitable for photographic operations. And this is quite possible in the studio and in the closed work-room—in summer by judicious ventilation, in winter by well-regulated stoves—only in landscape photography it may not be so easy to arrange this, especially in winter time; however, in most cases, this can be done. Very often there is a house near the landscape to be taken, and the photographer can lay his case filled with plates in a warm room long

enough to heat them, and then at the last moment, when the apparatus is completely arranged, and all ready for the picture to be taken, he can bring them out quickly and expose instantly. But should there not be any such opportunity near at hand, the photographer can warm the plates on his own body, by carrying the case inside his vest for some time before it is needed. In this way I have taken pictures out of doors in bitter cold weather and they have been fine.

Just as important as the exposure, is the development of the plates. With this part of the work it is necessary to take great care that the developing solutions possess the right degree of heat, since it is impossible to produce strong negatives in a clear cold bath. If a heated dark room is not always to be had, then it would be better to wait until evening and develop in a sitting-room, the dishes and solutions having been brought into the warm room some hours before. If one is obliged to work in a cold room, then he should place the developing dish in a large vessel filled with warm water.

In toning, also, the warmth of the gold-bath plays no insignificant part. Fine, rich, and uniform tones can not be obtained in a thoroughly cold bath. The copies will be weak and slate-colored, or assume in the fixing bath a disagreeable red color. The otherwise excellent chloride of silver colloid is particularly sensitive in this respect, and requires therefore extremely careful treatment.—L. G. W. in *The Zeitung*.

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### THE HUMOR OF IT.

SHE was decorating her room with pictures, and perched her husband's photo on the topmost nail. Then she sat down to admire her work, and remarked quietly: "Now everything is lovely, and the goose hangs high."—*New York Sunday Mercury*.

WHERE THE RESEMBLANCE CEASED.—A lady who had her photograph taken was showing it to her husband. "Do you think it looks like me?" she asked. "Yes," he

said, after a critical examination, "it looks like you, only it seems very quiet."

"I WAS never exactly buried alive," said an old photographer, recounting his experiences, "but I once offered a proof to a lady which she called 'a horrid thing.' When she went out, my hair was almost as white as you now see it."

A COMICAL incident is related of an eminent Chicago photographer, who was presiding at a P. A. of A. dinner. He concluded his few feeble remarks by proposing the "health of Daguerre." Some one pulled his coat tails, and whispered that he was dead. "I regret," continued the artist, "to announce that intelligence has just been received that Daguerre is dead."

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### ON THE COMPOSITION OF THE PICTORIAL.\*

BY NORMAN MACBETH, R.S.A.

THE composition of that which is calculated to be made pictorial depends very much on the taste, aptitude, and culture of the mind that desires to pursue it. It takes much time and application by those who are well read on the subject of art to put this into practice, for without a fine sense naturally of that which is picturesque, there arises much difficulty in the selection of a subject. However, when that is present, it is gratifying to state that with a knowledge of leading principles, and the methods of employing them, the difficulties very soon disappear. The photographer has many advantages over the draughtsman, because when once he knows the proper standpoint to view the subject, nature, reflected by the camera, greatly assists him in the arrangement, whereas the draughtsman has to gather it all by his own mind and put it up besides. Certainly he has advantages again over the photographer that he can reject at his pleasure that which does not suit his arrangement, but, on the whole, it is much easier to compose by the assistance of the camera than it is without it. Never forget that the first essential is a feeling after the

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\* Abstract of an Address given at the Photographic Club.

picturesque and what is really beautiful in nature, then comes the desirability of the art by which one is able to select, separate, arrange and present, that which is most valuable, beautiful, and impressive. It is to a knowledge of this, then, that I ask your especial attention to-night.

Two years ago I spoke on this subject at the South London Photographic Society. I had not then many prepared illustrations, neither were they exhibited by the aid of the lantern, but since then I have prepared some lantern slides, and hope, through them, to show you what is to be aimed at and what to avoid.

The great properties of a subject in its treatment are balance of interest, but not equality in importance—being diverse in character, but always in unity—the principal part, such as head, taking the lead, and the rest of subject matter following in expressiveness, in strict relation to each other, no portion unoccupied, and yet no redundancy. The more variety one can render in the treatment, the more does it bespeak his knowledge and inventive power.

The importance of the limit or bounds of the subject, called the boundary lines, I now call your attention to.

Why is it that pictures are not constructed with the breadth and length of them equal? My reply to the question is—you never see a picture in any exhibition so bounded, unless it be when a circular form is enclosed. Such pictures are unavoidably too much concentrated, consequently limiting diversity of arrangement; and the reason why lantern slides are so constructed is, because they serve the purpose of diagrams generally employed in scientific illustrations. But a diagram is not a picture, although unfortunately, the square form of the ordinary lantern slide has been used in the exhibition of scenery, yet the subject should only have the boundary line suited to it visible; without this special limit to the subject, it has not its peculiar attribute that defines the picture. This, I trust, will be fully demonstrated in the slides to be exhibited to-night.

[Here followed the projection of fifty-eight pictures on the screen, each of which was accompanied by critical remarks, which

would not be understood without the illustrations. The first seven or so were diagrams illustrating the principle and method of pictorial boundaries—that the most perfect form of a parallelogram was made by the length being determined by the diagonal of the square of the breadth; that other forms might be used, but that the square shape of a picture was to be, if possible, avoided. That a parallelogram, when divided by odd numbers—three, five, or seven, each way—the intersections gave *forte* points, on which the principal parts of a subject were to rest; that they were to be varied in their choice, thus producing variety of treatment. Mr. Macbeth pointed out the importance of the place of the horizon line, according to the subject—whether in a portrait, a landscape, or sea view. These, and a few minor essentials, were examined and explained in the varied forms of composition submitted by the illustrations, under different subdivisions, and always made by odd numbers, after which Mr. Macbeth continued.]

I trust that the principle of subdividing a given sphere constituting *forte* points, as now fully illustrated, is thoroughly understood, and will be found serviceable in the composition of the pictorial. Some have strong views in favor of naturalistic production only being attempted—*i. e.*, taking nature simply as you may find it. They are very jealous of rules of art, regarding them as the conventionalities of schools. Well, if anything does give a true rendering or reflection of nature as it is at the moment, it is photography. But as you see every day in the attempts of beginners, there is little concentration of the subject, and no variety of treatment to make it interesting, consequently you must have recourse to some method in order to govern and regulate the subject, otherwise it stands a bad chance of being a picture. Imagine any one sitting down to a piano and rattling over the keys at any rate—what kind of music is that? As in the art of speaking or writing a language, a grammar *must* be introduced in order to regulate words and sentences.

It is a difficult thing to subject the rules of picture making to the requirements and

capacity of photography. It is a branch of study meeting the claims of science as much, and fully more so, than that of art. To embrace the latter, the claims of art require much care and scrupulosity in what is introduced for its treatment. The tendency of photography in making application of art (especially the canons of fine art) is, that it attempts too much beyond its province and power. It is mainly a mechanical art, and very dependent on the instrumentalities and means for carrying out its designs—means and appliances not common to any other art—so that thereby its simplicity and purity are greatly endangered through the attempts of many who find the development of a plate otherwise easy.

In my former lecture I alluded to the attempts of building up a composition from various pieces of other negatives than that on hand, and which may have been taken for the very purpose. I hold that it is hardly legitimate to do so, inasmuch as the method is not only not so satisfactory as the arrangement of actual objects made in the studio, with figures and accessories so placed so that you can ultimately photograph the whole subject in a completed state, but to have recourse to such a bolstered method with separate pieces, I think, is very unworthy of being allied to the higher associations of fine art. It has been asked, If artists do so why may not photographers? I presume when it is said that artists do so, it is meant they make studies from nature and apply them to a subject? Certainly they do, and without this application it is not to be expected they can do much if left to their own resources. Neither can the photographer. I wish him to make as many studies as he possibly can, try them in every advantageous way, then, when thoroughly conceived and designed, work out the subject on an actual field, either within or out-of-doors, and then photograph the same in its completed form. This is, I conceive, the legitimate province of photography, and it should be carefully conserved.

Mark you, gentlemen, I do not object to any contrivance on that field, provided it is worthy of the subject, for nothing that is vulgar or mean in character should be tolerated for a moment. It is the exercise

of a fine taste, as well as fine arrangement, that will elevate and ennoble such efforts. Any one who knows the deep interest I have all along taken in the history and practice of photography, and especially in fostering and protecting the art element in association with it, must feel that I can have no antagonism to what I conceive to be a legitimate pursuit of it; but as to the method that is often resorted to in working out a composition by separate composite parts I have very strong convictions against it. Very few who have attempted it have succeeded in concealing their contrivances, and have forgotten the old saying, "*Ars celare artem.*" The main tendency of such a method is, that the terminations of each part do not sufficiently blend with the parts in juxtaposition, consequently they appear not unlike the side-wings of a theatrical stage. I cannot understand why the simpler method to which I have alluded should not be attempted more. Perhaps it is for the want of accommodation, as such work would require a room for itself. Those who have out-door accommodation would succeed admirably, and it would well repay them for their pains, working out simple studies under the effects of natural light, either in direct sunlight or diffused. I am satisfied in my own mind that by this means you would successfully cope with the arrangements of higher art, provided you are able to control and regulate the action of your figures. The main dependence you have, after your own knowledge, is the feeling that you are able to infuse into your characters in carrying out your designs. It is in this that the merit of both Mr. Robinson and Mr. Diston's work mainly consists—not in their manipulative arrangements on a negative, for these are not unfrequently too apparent. I think it is Mr. Wall who has written in the *Journal* concerning this (the feeling thrown in or rendered by the actors). If photographers would cultivate that more, they would immensely raise the status of their profession in the art direction, and lay claim to be next to the draughtsman in their ability to compose.

I have never yet seen, nor read of, any distinct definition or limit of the province of photography in relation to its application

of artistic work, which it professes to take up. So far as I can make out, from what I see in its operation, it lies between the art of painting or drawing and dramatic or stage art. The former is called a fine or creative art, because of its influence to be entirely at the disposal of the artist, entering upon the treatment of his subject by choosing and rejecting at his pleasure that which is most suited to his necessities and wants, entering also into such niceties of feeling, subtle and delicate, especially in manipulation of drawing and color. Some of these arrangements (as I have shown to-night) may be done by the photographer, but his power is comparatively limited, owing to his dependence on the lens (which draws for him). What he must do is the exercise of his judgment of the standpoint of the camera, construct his arrangement of subject, and develop. This is a great deal, but beyond that he is walled in. It is not his province to paint, neither on the negative nor on the print (excepting for defects purely incidental); the moment he does so he leaves his domain, converts his work into a mongrel, and renders his special art impure. It was certainly a retrograde movement when photography had recourse to the brush and other instruments (to meet the wishes of a vain and ignorant public), by touching up and remodelling the human face, destroying much that is valuable in likeness and character, making the production no longer authentic or valuable for reference in years afterwards.

Photographic art is distinguishable from all others in that its representations are, and ought to be, pure reflections in their ultimate issue, not manipulations; and the only credit the photographer can take, so far as art is concerned, lies in the skill with which he can conceive and arrange pictorial effects, apart from appliances beyond his sphere, as the manipulation of composite negatives.

These are my views on this part of my subject regarding legitimate means for constructing pictorial effects and arrangement. It may be considered a mere matter of taste and opinion which I set as to the *modus operandi*. Well, I have given my reasons, and reiterate that I wish to see photographic art clearly defined from other

branches, that no means be employed to lower the worthiness of what I conceive to be legitimate artistic effort, and that its special art—by simple reflection—be kept pure and as severe as possible.

I have no objection to any treatment by light on the subject proper, or on prints. This is analogous to the methods employed by the printer of etchings. There is the etching proper, but by the skill of the printer, under the direction of the etcher for completed proof, he shades certain parts by more ink left on the surface, or keeps other parts very clean where brilliancy is required. Much may be done toward such an end in photographic printing, and I have no doubt is done, which I regard as legitimate work, because it is done purely by light.

Although double printing is almost universally employed, still I regard it as a do-no-better. The want of some appliance was felt when clouds and landscape could not be taken simultaneously, but now that sky-shades can be adjusted to the lens, such as my friend Mr. Parker's, of Glasgow—so thoroughly controlling the light on the sky while the landscape is being exposed first—every one who has seen his production must feel that double printing is unnecessary. Certainly it is very tempting for composition purposes, that by choice cloud effects you can introduce lines that have a beneficial effect in composing with the landscape, yet all this is a part of the same cobbling which I complain of, and infinitely better would it be were you to bide your time and catch favorable clouds as they appear in conjunction with the landscape. Should you be pushed for time, and no clouds present when the plate was exposed, then, when the subject is printed, tone in, and graduate a sky by the influence of light over the surface, which would represent and give the feeling of a pure sky. It is to be feared that much of the indulgences in extraneous appliances is the result of doing the work by the easiest methods, irrespective of truth and taste. If there be difficulties in any department, let us fight with them, and not resort to spurious methods because they happen to be easier or more convenient.

I have always regarded photographic art and its requirements as being more allied to dramatic art than to that of fine art. For the construction of a scene, having several figures in it, see how carefully the arrangement of them have been made by actors, each individual, each group of figures, varying in position and action, and this every night reproduced because the subject has been fully felt and understood. I do hope the day is not far distant when stage effects may be photographed. Indeed, it would be worth the effort if rehearsals were made in the open air, under sunlight, and during the course of action instantaneous impressions taken; it would not only be valuable and serviceable for actors, but for all interested in dramatic and pictorial art.

In conclusion, let me earnestly urge upon all desirous of entering on this study, either from external nature or the human figure, to begin by making simple efforts on the principle of these *forte* points which I have illustrated. Have the camera focussing glass divided into odd numbers—say five or seven—and very soon you will be able to discover their value and suitableness to any subject. I humbly trust the critiques I have made on the pictures brought before you may have been suggestive and profitable, and that nothing which I have said, either on the pictures or otherwise, may have been the least offensive to any of the originators.

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### THE COMPOSITION OF THE PICTORIAL.

At a meeting of the Camera Club, held on Thursday, March 10th, Mr. Norman Macbeth, R. S. A., lectured upon artistic composition. Mr. Adecock occupied the Chair.

The lecture was illustrated by diagrams and pictures shown by the optical lantern, and it treated chiefly of rules of guidance as to selecting the most effective boundaries for pictures as to the arrangement of the principal objects so as to secure pleasing balance and effect. In regard to the proportions of pictures, Mr. Macbeth stated that the smaller of the two dimen-

sions being fixed upon, the length should be obtained by taking the diagonal of the square formed upon this smaller dimension. This surface should be divided up into subdivisions of uneven numbers. Leading objects and those placed or composed to balance them must be on the intersections of these lines, if a pictorial representation is to be secured. After giving the substance of the lecture, which had already appeared more fully in the photographic papers, Mr. Macbeth went *seriatim* through a selection of pictures thrown on the screen, explaining how their boundaries had been fixed and objects placed according to these rules. The greatest stress was laid on the use of such rules of guidance in deciding the limits of a pictorial composition when trimming the photograph.

The Chairman, in calling for discussion, expressed his satisfaction at having acquired some new and useful knowledge from the lecture. He had come one hundred and four miles chiefly to hear Mr. Norman Macbeth. He knew that discrimination and courage were required in trimming photographic pictures to their most pictorial proportions, and said that much more attention should be devoted to this point by photographers. Many of Mr. Macbeth's remarks and those indications of figures which he had painted in where required upon the lantern pictures showed us a weak point in photography as compared with painting, namely, the difficulty in regard to placing figures or objects, such as cattle or ships, in just the place where there was a felt want. He had been greatly gratified at seeing some of Mr. H. P. Robinson's fine work upon the screen.

Mr. W. K. Burton said he felt the art side of photography somewhat out of his domain. In regard to so-called instantaneous exposures, Mr. Macbeth had stated or inferred something which was not quite correct when, as he understood him, he suggested that much error could not be made in shutter exposures. There was just as great a difference in effect on the plate between one-tenth and one-twentieth of a second in rapid exposures with large apertures as between ten and twenty seconds in long timing.

Messrs. Davison and Rodgers expressed some scepticism as to the value and reasonableness of the system proposed by the lecturer.

Mr. Wollaston asked whether the old masters built up their compositions by recourse to a mathematical arrangement to find *forte* points.

Mr. H. H. O'Farrell questioned whether the theory of *forte* points, like other art rules, was not capable of being over-refined, and pointed out that in one picture exhibited by the lecturer and divided by him into seven divisions, there was an object of interest in each division. He thought that rules of art could never be said to be firmly based unless capable of an explanation grounded on the physiology of vision. The eye, for instance, had only a very limited range of vision, and was constantly travelling over the object viewed. The *forte* points might possibly be explained as being situated on the extreme edges of the area of distinct vision, and thus forming a series of steps leading to the eye across the picture. So, again, if a curve were more pleasing to the eye than a straight line, the reason probably was that the eye moved over a curve with less muscular effort than along a straight line. Whatever might be thought of these examples, it seemed clear that until some scientific basis was found all canons of art must be more or less unsatisfactory.

Mr. Macbeth, in reply to criticisms, stated that those pictures, thrown on the screen without the lines on which the composition was arranged being shown, had been felt as pleasing, but they had been treated in the same way as those exhibiting the subdivisions. In seeking to construct a composition pleasing in regard to balance and arrangement, he did not see what else besides such a system there was to rely upon. He would emphasize it particularly in regard to the fixing of the final boundaries of the picture in trimming. As to Mr. O'Farrell's remarks in regard to the picture showing seven figures in a line across the picture, each on a *forte* point, he would say that he did not suggest the plan as serving more than merely an indication in instantaneous work. It would assist in making

the best possible arrangement of such a picture when fixing the boundaries.

A hearty vote of thanks was accorded the lecturer for having opened up a most interesting discussion, and for having directed attention to the subject of artistic composition in photographic work.

### THE LEGITIMACY OF DOUBLE PRINTING.

AFTER a careful perusal of the interesting lecture delivered by Mr. Norman Macbeth, R.S.A., before the members of the Photographic Club—and a careful perusal it richly deserves by all who aim at artistic work—one cannot but feel that there is a bias and not in favor of photography in the assumption that photography is out of place if it attempts idealism. According to the lecturer, photography has a plain matter-of-fact course to run, and it must not deviate from that track under any circumstances. This is scarcely fair to photographers, some of whom have succeeded in imparting by their own skill and intuitive perception of the beautiful, highly artistic and idealistic qualities to their pictures. Did not Rejlander produce anything that might fairly claim to be idealistic? Has not H. P. Robinson, Adam Diston and others combined negatives so that the resulting print told its tale in a manner not to be gainsaid? And, to my thinking, a great deal better than scores of pictures we see hung at our picture exhibitions, and which claim to be exemplifications of fine art. Undoubtedly artistic improvement is the quality photographers will have to cultivate, and it is hard lines for them to be told at the outset they are seeking after a chimera, and the process they use is incapable of producing more than mechanical work at its best. Why the lecturer should set his face against a photographic picture being made of more than one negative I am at a loss to understand, unless he is under the impression it cannot be done without a great deal of hand work to hide the junction of the different negatives. This, at any rate, is not the case, and a clever manipulator will be able to effect it without the slightest indication of such joins. That figures can be introduced

into landscapes without infringing the least canon of art has been proven repeatedly, and I do not think better instances of this kind can be pointed out than the small figure subjects with natural backgrounds Mr. T. Edge introduced many years ago. There was no touching up to hide the joins, and no inlaid appearance when they were done. They were perfectly natural, perfectly artistic, and perfect pictures in every sense of the word, and could the lecturer have seen some of the best examples, I am inclined to think he would withdraw his opinion as to the inartistic effect of printing from several negatives.

Again, with respect to printing in skies to landscapes where otherwise there would be a blank space or a graduated tint utterly inappropriate for some subjects. Graduated tint only suggests a perfectly free, cloudless sky, and photographers aim at something more than only representing nature in its softest moods. Fancy a picture of a coast scene on a rough day, who would think a calm and cloudless sky could by any means accompany such a scene? It would be altogether out of place and an utter absurdity. Printing in clouds from a separate negative is, to my thinking, *when properly done*, a very artistic improvement, and I fail to see why any exception should be taken to it. Skies utterly inappropriate may be added, and frequently are, but that is no argument against their use in a *proper* manner; if they convey a truthful impression, painters can do no more. It is said that because the landscape is affected by the shadows of the clouds that pass over it, by putting clouds in that were non-existent at the time is contrary to truth. Why this argument should be applied *only* to photographers is difficult to say. I should like to know how often a painter puts into his picture the sky that existed at the time he painted the landscape. The fact is that, except in certain cases, the shadows of the clouds are a very unimportant factor in the matter. In the first place, the cloud must be very dense; and, secondly, it must pass between the sun and the landscape being photographed. In a general way the sun is either at the side or behind the photographer, and the shadows cast from the clouds are barely perceptible.

If they do fall on the field of view, the slight flattening effect is absorbed by local color or configuration of the ground, and becomes quite inappreciable in the photograph. For clouds to visibly affect the photographic landscape they must be heavy, and the sun must be behind them and in front of the camera, and a wide open view must be the kind taken. Then with a very rapid exposure cloud shadows will be noticeable. Now, except for certain effects, such a position with the sun in front of the camera is rarely ever chosen, as it is the very worst kind of lighting for general subjects—opaque objects, such as trees, houses, etc., are rendered with little or no detail and in a manner silhouette against the sky, and the least mistiness in the air is greatly exaggerated. The cast shadows of clouds are so very indefinite and fleeting that few artists ever attempt the same clouds that existed at the time they painted the landscape or the same shadow they produced—except, as I have already said, in special cases—and I am convinced that no artist or photographer could by any possible means decide if the clouds shown in the photographed picture existed at the time and were simultaneously taken with the landscape, or if they were entirely foreign to the subject. Of course, this is presuming such clouds were artistically and skilfully managed. I have seen photographic pictures with skies taken simultaneously with the subject that had the appearance of being afterward added, much more than when they were really so. It *very rarely* happens that the existing clouds compose anything like as well as clouds afterward added, and the fact of the special suitability of the sky at once hints at double printing. Painters themselves generally suit the form of their clouds to their subjects, or ought to do so, and would probably be astonished if they were charged with not being true to nature because they did so. The fact is, a certain amount of license is not only permissible, but necessary, in picture making, whether the means used are pigments or light itself. Any one taking advantage of the means at their disposal (by two or more negatives in the case of the photographer), so long as the results harmonize, are quite, in my



opinion, within the legitimate scope of the art they employ.—EDWARD DUNMORE.

### MR. MACBETH ON LEGITIMATE PHOTOGRAPHY.

It would be difficult, if, indeed, possible, to overestimate the value of Mr. Macbeth's utterances on the art side of photography; we can never have too much of such teaching. But I cannot quite follow Mr. Macbeth in his *dicta* as to what is legitimate and what is illegitimate in the art. Mr. Macbeth expresses himself with such admirable clearness that I, of course, understand precisely what he means; and while I sympathize fully with his views, I cannot fully agree with his arguments nor his conclusions.

Mr. Macbeth clearly argues that we are bound to confine our attention and our operations to what is purely and solely photographic action—the work of “simple reflection,” as he puts it. I am not willing for a moment to deny that what is not light action is not photography; that would be a flat contradiction of terms on my part. But why should a photographer be confined to photography? Are we bound by any law to confine ourselves to the effects of “simple reflection?” In that case we must never trim our prints, nor mount nor frame them. Yet trimming, mounting, and framing are important points in the production of artistic work. The painter draws as well as paints; yet I never heard painting called a bastard art. The sculptor is, to a certain extent, also a plasterer; but a statue is not an illegitimate production in common parlance. Why, then, should not a photographer be also a drawer, or a combiner, or an etcher? I cannot see where the difference comes in.

Mr. Macbeth sees no harm in getting together, all at one time and place, groups of figures with appropriate surroundings, but he will not hear of portions of the whole being photographed separately, and then combined by any means whatever. I grant the difficulty and the usual failure, but I ask, Where the objection? And why is a painter to be allowed to do what is forbidden to the photographer? Are we to insist

that a historical subject is to be painted actually in presence of all the figures or models? and if not, why not? The one is as impossible to the painter as the other is to the photographer.

Mr. Macbeth objects to the double printing of clouds, and says it is more legitimate to wait till a suitable cloud comes on the scene than to select a suitable cloud from a box and print it in. Putting aside the question of *getting* the suitable cloud along with the view, and overlooking the somewhat nice point of *photographing* it along with the view, even with one of the old sky shades, I still cannot help thinking that the double printing operation is every bit as artistic as the other, and it is pretty certain to be more successful. Mr. Macbeth carries his aversion to double printing to a great height when he recommends as an alternative the ancient system of vignetting, or graduating the sky on the print. Nor can I see any vital difference between this vignetting and the vignetting of one negative into another, as in combination printing, which Mr. Macbeth deprecates. They are equally light action and equally vignetting, only the combination printing is *faute de mieux*, while the sky gradating is *faute de pis*.

And with regard to retouching. What good reason can be stated why we should be bound to leave portrait negatives, with all their facial color defects, not only reproduced, but exaggerated? Retouching is certainly not pure photography, but the virtues of charity, honesty, courage, are not pure photography either, and yet are not forbidden to the photographer. I remonstrate against the idea that photographers are to be forbidden all else beside photography. I thoroughly agree with Mr. Macbeth that retouching and combination printing are frequently badly executed; but that fact does not appear to me to condemn the operations, but only the operator in each particular case.

It is true that Mr. Macbeth does not pretend to urge any arguments in favor of his proposition; he merely states that he objects to certain things as being non-photographic. For my part, I can see no reason for his proposition, and in certain phases Mr. Mac-

beth's reasoning seems to contradict itself, as I have already pointed out.

Is there a fear in some quarters that photography is encroaching, or apt to encroach, on the sacred precincts of painting? That is the only possible objection I can discover to combination printing and "modelling," and it is an objection entirely one-sided and worthless from any point of view, except one. I yield to no man in my veneration for a really good painter, but I have no great respect for a poor one, and I consider a really good photographer a more admirable person than a second-rate painter. And I have a suspicion that the public is pretty much of my opinion in these latter days, when photographic portraits are being produced and carried (by the method Mr. Macbeth objects to) to a pitch of beauty and excellence not until lately dreamed of. Photography will never probably affect the higher grades of painters, but it has seriously affected and will still more affect the less talented painters, unless, of course, photographers follow Mr. Macbeth's advice, and confine their attention to the mechanics and chemistry and the almost impossible combinations of figures and furniture which Mr. Macbeth seems to lay down as the fitting *ultima thule* of our aspirations.

Be it noted that I say nothing here of exhibitions. A photographic exhibition should be an exhibition of photographs—not of drawings, nor etchings, nor paintings.

Considering Mr. Macbeth's position, his experience, and his age, I deliberated carefully before thus venturing to dissent so strongly from his theories. But dissent I do most emphatically, come what may. If photography could be brought to such a state that we could by pure photography produce the effects we aim at, I should say, stick to pure photography. But at present it cannot be done, so I say, use what aids you can; no man has any right to forbid you aids permitted to others. Photography, as well as painting, must be done so as to please.

ANDREW PRINGLE.

P. S.—I hope no one will suppose I am here advocating wholesale "retouching." I never tried to retouch myself; nor do I

ever get my negatives retouched for my own use. "Modelling," at the best, is a makeshift; but that does not condemn its use *in toto*. Better "model" than send out horrors.

A. P.

## BROMIDE OF SILVER GELATINE EMULSION PROCESS.\*

BY WALTER E. WOODBURY.

(Continued from page 204.)

### BRIEF RECAPITULATION OF THE OPERATIONS NECESSARY IN PREPARING THE PLATES.

1. Cleaning the plates by cold saturated soda solution. When new, lay for one to two hours in the cold solution; when coated by the emulsion, lay on the tepid solution and leave them there for from one to two days; afterward well wash and dry. The wiping cloth must be soft, and must never be washed with soap, but only with soda.
2. Previous preparation of the plates, either by cleaning with Greene's plate-cleaning powder, or by rubbing with diluted water-glass solution.
3. The previously prepared plates are to be brought into the dark chamber on the plate-frame or in the plate chest.
4. Temperature of the dark-chamber to be heated in winter to 20° C. The setting-plate to be placed level.
5. Water to be warmed in a large vessel for bottles and for keeping the emulsion warm.
6. The emulsion after draining to be brought in a porcelain vessel, and the vessel to be placed in the warm water.
7. The melted emulsion to be filtered in another basin, and this, as well as a measure and a hair brush, placed into the water bath and the lid closed.
8. Fill the warming apparatus with hot water, bring it to the preparing table, and put two plates ready for warming.
9. Measure out the emulsion in the measure, pour it on the previously warmed plate, distribute it by inclining the plate; in case of need, helping it with the hair brush; then

\* Translated for the PHILADELPHIA PHOTOGRAPHER from Pizzighelli's *Handbuch der Photographie*, Band I., 1886.

place the plate on the horizontal glass or stone slab for the congealing of the emulsion.

10. Continue working on this plan till the horizontal table is quite covered with plates coated.

11. After the setting (above fifteen to twenty minutes) take the plates to the plate-stand or the drying-chest.

12. After completion of the coating process, close the drying chest; if necessary, light the flame in the ventilation chimney or passage. Every vessel must be thoroughly cleaned after use with hot water.

13. After completion of drying (twelve to eight hours) take the plates out of the chest and preserve protected from light and damp.

#### ORDINARY FAULTS IN THE BROMIDE OF SILVER GELATINE EMULSION PROCESS.

The operator with gelatine emulsion falls across a multitude of difficulties, which lie partly in defective and imperfect manipulation, and partly in the improper treatment of the plates in preparation, development, etc. The following review (which was the first complete summary of faults in the emulsion process, and was published by Dr. Eder in 1880) draws attention to every principal source of failure, although for the amateur, who generally uses either a ready-made emulsion, or buys ready prepared plates, only those affecting the latter part of the process are interesting.

1. The emulsion is too thin and liquid, and gives, consequently, no sufficient thick layer or coat.

*Reasons.*—Too much water has been added in mixing, or the washing-water has not been sufficiently squeezed or drained out from the emulsion; or, finally, the emulsion was broken up, and washed while only half set, and, therefore, absorbed up too much water.

*Remedies.*—When preparing the emulsion to stop at the exact quantity of water; to press thoroughly the water from the gelatine after washing, and let drain for some hours; to break the emulsion up only after it has become quite firm. In summer, stand the basin with the emulsion, in case of need, on ice. To already prepared but unused emul-

sion, add 2 to 3 gr. of soaked hard gelatine to every 100 c. cm. of emulsion; or let the emulsion set, press it through wet stuff into alcohol, leave it there half an hour, then take it out and spread out in the open air to get somewhat dry, when again dissolving for coating, add water if necessary.

2. The emulsion while in the bottle becomes of itself liquid or pap-like.

*Reasons.*—This appearance, a consequence of rotten or putrid glue, is of frequent occurrence in summer, when the emulsion has been kept some time, say, several weeks. The putridity cannot so easily affect it if an antiseptic (carbolic acid) be added, or if kept underneath alcohol. This fault may go so far that the coating of the plates will not stiffen. A rotten gelatine emulsion also results often in veil and dissolves off the surface of the glass plates after fixing.

*Remedies.*—Have already been given above. When the emulsion is once decomposed, no remedy can avail, set it aside.

3. The emulsion turns a brown or sort of violet-gray color.

*Reasons.*—If the emulsion be exposed for a time to white light, it becomes violet-gray in color. The inside part may, however, sometimes be used. Emulsion prepared with a superfluity of nitrate of silver turns a yellowish-brown color after long keeping, and it is then utterly spoiled and useless.

*Remedies.*—Keep the emulsion in the dark. Make tests with bichromate of potassium before setting takes place. If the emulsion be then colored, throw it away.

4. The emulsion runs irregularly and badly when poured over the glass plates.

*Reason.*—Imperfect cleaning of the plates.

*Remedies.*—Rub the plates with a rag dampened with diluted water-glass (1 to 200), or with a decoction of glaskraut. Clean them with Gruere's plate-cleaning powder. When coating, arrest the flow of emulsion by means of a soft brush or a perfectly clean fringed tip.

5. Streaks, waves, etc.

*Reasons.*—Glass plates too cold, and emulsion insufficiently heated, or the emulsion contains too little water or too much alum. From all these reasons it stagnates while flowing out, especially in winter.

*Remedies.*—Warm the plates in winter,

although not too much, otherwise streaks may also be occasioned as well as from the cold, and these would also show on the negative. Place the emulsion bottle in hot water (50° to 60° C). The wavy appearance is, generally, not observable after the negative is fixed. Streaks also arise from the water-glass employed to clean the glass plates being too strong, or from too much of it having been put on to the plate.

6. Air bubbles.

*Reasons.*—The emulsion not properly filtered through cotton before the coating operation; or the measure held too high when pouring out.

*Remedies.*—If air bubbles appear in the emulsion through negligence or inadvertence, it must be filtered through cotton, and the measure must be held quite close to the plate. Single air bubbles on the plate may be removed by the finger before the emulsion has stiffened.

7. The emulsion will not set on the plate. This fault is of frequent occurrence in summer, particularly in laboratories where the temperature averages over 20° C.

*Reason A.*—Too high temperature.

*Remedies.*—In winter, self-evident enough. In summer, lay the plates on a level metal or stone slab, not higher in temperature than 10° C., in a few minutes the coating will be completely set, and may, without danger, be dried in an upright position.

*Reason B.*—Insufficient quantity of gelatine contained in the emulsion.

*Remedy.*—Add some solid gelatine, which must first be soaked in water.

*Reason C.*—The chief cause of this fault is to be found in the decomposition of the gelatine contained in the emulsion. Either from excessively long cooking, or from a more or less advanced stage of putrefaction, or in consequence of the melting process too often repeated, which latter is specially injurious when the quality of gelatine is bad.

*Remedies.*—Sufficiently indicated in the foregoing reasons. If the gelatine be decomposed, lay it aside.

8. Zones and rings, which may be observed in the coating by reflected light, and frequently appear on the negative, disturbing the effect.

*Reasons.*—Irregular drying of the plates;

for instance, drying too slowly with an imperfect ventilation; or too quickly with too high a temperature; frequent opening of the drying chest during the operation, causing an irregular drying.

*Remedies.*—Use a drying chest with a good draught of air; also, placing the same in a moderately warm position.

9. A sort of map-like or cloudy pattern, plant-like in appearance, which become fairly visible on the strongly glazed surface before development.

*Reasons.*—Salts secreted, owing to bad washing of the emulsion. If they appear after the fixing the fault lies then in bad washing-out of the hypo.

*Remedy.*—Self-evident—good washing.

10. Faint, shining spots or patches.

*Reasons.*—When the operator endeavors to hasten the drying of the emulsion by dipping in alcohol, very many evil consequences are apt to follow. Sometimes, after being completely dried, the plates exhibit faint, shining spots, which are also reproduced in the negative. Bright spots are also found close to faint ones, which also make their marks in developing. Also, in summer time, plates which set slowly, and dry before they are quite congealed all over, show similar spots.

*Remedies.*—Let the plates dry spontaneously. In summer, place them for setting on a cooled or iced plate.

11. Layers of unequal thickness.

*Reasons.*—The setting plate badly levelled. Bad, uneven plate glass.

*Remedies.*—Before every coating get plate level with the spirit-level. The bubble must play in the centre in every position of the instrument. Careful choice of plate glass for the receiving plate.

12. The plates turn mouldy.

*Reason.*—Keeping in a damp place.

*Remedies.*—Wrapping the plates in a waterproof cloth. Keeping in a dry place. Addition of an antiseptic.

13. The plates do not absorb the developer, which often occasions spots.

*Reason A.*—The gelatine plates have been kept for a long time in a very dry place.

*Remedies.*—Before developing soak them for a long time in water; quick movement of a great quantity of developer over the plates.

*Reason B.*—Too much alum has been added to the emulsion, so that it appears too strongly tanned.

*Remedies.*—If the emulsion be as yet not quite used up, the operator may generally be able to sufficiently increase its capacity for absorbing water by the addition of a few drops of glycerine. With prepared plates in the pyrogallic development, the diluted potash or soda solution must be left to work in for a long time, by which the coating is loosened, and then the solution of pyro can be added. Strong, leathery sort of plates should be laid in warm water of about 40° C. for a few minutes before developing.

14. The picture appears veiled. This veil displays, after fixing, almost the same color as the negative, whether developed with iron or with pyro.

*Reasons A.*—If the entire plate is veiled, excepting the borders and the corners, you have the clearest proof that over-exposure has taken place, or that light has penetrated the camera during the operation.

*Remedies*—Already developed plates with a strong veil are lost; a weak veil may be weakened with the sulphocyanide of ammonium gold bath. Plates not yet developed, but which the operator knows will show the fault, must be treated with a developer modified accordingly. Camera and dark slides should be thoroughly examined as to their being impenetrable to light.

*Reason B.*—If, however, the whole plate becomes veiled during the development, the veil may be occasioned by the admission of outside light during that process.

*Remedies.*—The developed plates cannot be saved. The whole dark-room must at once be examined to see if light penetrates through any holes or cracks; the condition of the red glass must be ascertained by covering carefully the half of a gelatine plate, then exposing it for from three to five minutes against the red window of the dark-room and treating it with a fresh developer; both halves should remain clear; if not, it will be easy to draw further conclusions.

*Reasons C.*—Partial decomposition of the bromide of silver during the first production of the emulsion; occasioned by too long digesting at too high a temperature; by the

addition of too much ammonia, and by a commencing putrefaction of the gelatine.

*Remedies.*—More exact following of the directions given. To ready prepared and exposed plates add a little bromide of potassium to the developer, or in case you are working with oxalate of iron, begin to develop with an old developer.

*Reasons D.*—Too slow drying of the plates; veils occur often when the plates take longer than from three to six days to dry. In these cases the outer edge of the coating frequently becomes quite clear, while the inner displays a great round spot thickly veiled, which, of course dried the latest.

*Remedy.*—A good drying chest.

*Reason E.*—Drying at too high a temperature. When the plates are overheated in the drying chest, they are generally "veiled" in development.

*Remedy*—Self-evident.

*Reason F.*—Keeping for a long time in damp places; also an impure atmosphere, particularly with sulphuric fumes, is injurious.

*Remedy.*—Also self-evident.

*Reason G.*—Wrapping the plates in impure paper—as many kinds of printed papers or black colored papers produce faint veils, sometimes spots, which proceed from a superficial reduction of the bromide of silver. The edge of the plate which is touched by the pasteboard layer of the packing generally leaves its mark upon the negative.

*Remedy.*—So to lay the plates on one another that the glass sides of the two outside plates are turned outwards.

To be continued.

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## THE AMATEURS' EXHIBITION.

It is not so long after all that the amateur has really been in force among us. Photography as a "craze" is a development of the last very few years, and it was a cheering sight, the exhibition of the three societies held in this city last month (March 26th to April 2d). Even to the familiar eye some of these photographs brought a gleam of pleasure; to the earnest amateur they must have given much new knowledge

as well; and the uninitiated must have found photography take a new and higher and larger place in his mind after he had been round the rooms. It was an excellent idea, this joint exhibition, successfully carried out, and must surely help the art.

It was good to see how many pictures showed signs of a feeling for art. Of course, there was a proportion of results of the mere fired-off exposure—the machine-made photograph. But there was a goodly show of pictures, evidently avowedly artistic; a most notable number of them. There was the print from a plate covered, not chosen—the unintelligent, the overambitious, the hopelessly passable mediocrity. But there were also pictures that halted one before them like a cry, and carried their sentiment as truly straight and solid as a rifle-ball.

From the technical point of view, it was notable how the latest improvements in lenses, shutters, plates, and papers, have been taken up. The variety of printing processes used were remarkable. There were bromide and collodio-chloride prints and enlargements, blue prints and platinotypes, besides the plain and albumenized paper prints. Every device of development, reduction, intensification, and even the cunning partial fog, was exemplified. And through every variety of lenses had the pictures been made on every possible brand of plate.

One particularly instructive lesson the exhibition gave on toning and mounting and their mutual influences. On the first, it seemed to show a series of warm browns and grays of a certain intensity, not quite reaching purple or maroon, not quite falling into cold blackish iron-like or rust-like tints. A good print in these tones, on paper almost without gloss, rich, soft, and satisfying, in spite of bromide and platinum, was unsurpassed; about the best achievement of all the many methods of printing. Among the frames and mountings, some particularly poor examples were a lot of small prints on thin white margined cards in a thin frame. Excessive margins of gray and white were also to be blamed. Bromides, above all, especially the rather thin, flat, and without strong contrasts, will not stand a large, flat, white margin. They

want a deep, dull gray or green or even rather strongly tinted. A rather high-keyed mass of unopposed, even half tones is perhaps the hardest of all to manage in photographic prints. Some particularly good mounts were simply a brown mottled cardboard, slit for the corners of the rather deep-toned prints; maroon-tone prints on dark dull red; platinotypes on dull green-gray; vignettted portraits, with plenty of white margin, in narrow border mats; and very dark small heads, in wider mats of the same sort, greenish and grayish. Above all plain wood frames.

There was plenty of landscape, much genre, but the highest branch of all, portraiture, was hardly exemplified as it should have been. There were some most excellent, carefully lit, well modelled, and clean, yet soft studies by C. Austin Needham, of New York. Storrow (professional), of Cambridge, Mass., showed some portraits on a system of strongly lighting the face on profile, and letting the back of the head be lost in shade. In two examples he made a pronounced success—one a small cabinet head with a large space of white, the other a larger head with light hair, where the light was high, yet soft and controlled. In others it was too strong, and then brought ruin, flowering and flattering the features, giving false expression, and frightfully harsh effects. High light must be a glow, but not a glare. Francis Blake, Auburndale, Mass., shows one excellent bromide, "Miss L.," a thorough success on a similar system of front-lighting; but others are harsh, showing annoying detail yet uneven and thin. The photographer who makes bromide enlargements should remember the surface he must spread over, and be sure to have enough on his negative to cover it. Good bromides are so superb that the sunstruck, scattered white poor one is doubly unpleasant. Geo. C. Cox shows some strong, quiet, rich heads, in quite a different school—rather diffused light and even effect. The modelling in his heads is fine. It is curious how much character, how much individuality there is in portrait work. There are many schools—the men who like to have their subject as if struck full in the face by an awful volley of blazing light, while all

around is dark—chalk against coal—and the men who swear by definition and use light like a probe to bring out every pore; from these to the artist who with curtain, screen, and reflector, makes the beam draw every feature, yet softly keep all a whole, and compels the sun to do his bidding. So from these portraits may we drawn lessons of use even to our professional brother.

Landscapes, of course, are in the majority. Frank Sutcliff (professional), of Whitby, Eng., sends seven large frames of marine, landscape, and figure studies, that are, as a whole, the pictures of the exhibition. To superb broad quiet effects, the choice of view and light of his landscapes, his marvellous skies, and the composition and feeling of his figure pieces, are added faultless technical work. His pictures ought to be put on permanent exhibition. They are worthy of a whole article themselves, or rather a series of illustrations, for words cannot reproduce their effect. Some of his marines give the solemn, intense feeling of the sea its very self.

E. P. Cembrano sends some exquisite little platinotypes, full of feeling. J. P. Gibson and M. Auty show, also, very strong feeling for landscape. All these are English; and others with names already known, W. Adcock, P. H. Emerson, and J. G. Sinclair, have kindly sent examples of their work; and there is a fine series of West's famous yachts. On this side, Alfred Clements rivals some of them on their own ground, in some splendid studies on the Suffolk Broods. R. S. Redfield, Philadelphia, shows some remarkably good and characteristically American landscapes of excellent choice. Prof. Henry Rowland, of Baltimore, shows a series of splendid instantaneous marines with fine skies. H. A. Latimer shows some fine Western views, from paper negatives. Bermuda seems to be rather a photographic haven; both M. C. Morris, of Philadelphia, and Wilfred A. French, of Boston, have brought back some most pleasing little views of its dark foliage and white sands and houses. Mr. French has a charming little moonlight effect in the centre of his frame. J. G. Bullock, of Philadelphia, shows good work. F. A. Jackson, of New Haven, shows pronounced

feeling for landscape, as does J. L. Stettinius, Cincinnati. Some exquisite little rustic bits, one with an inviting open gate, are shown by Mr. W. I. L. Adams. Walter Clark, of New York, shows some fine instantaneous pictures, some of cattle being especially good. Mr. George Wood's work is already familiar, and he has sent a pleasing show of the results of his genius for genre; some splendid large landscape studies as well as these he has "A Shady Lane" and "Sun and Snow," being two superb bits in their different ways. Mr. John E. Dumont's work also needs no introduction; his "Good-Night," a candle-light effect, rich and dark, mounted in light woods, is in general effect unsurpassed by anything in the exhibition. His "Solid Comfort" is also notable. A photo-gravure print of this last is also shown, and has qualities of its own that in some ways almost disprove the rule that a reproduction must always be inferior to the original. The Photo-Gravure Co. has three exceedingly interesting frames, one, a series of pictures taken in Daly's Theatre by electric light, one of gelatine prints, and one filled with some superb examples of their photo-gravure reproductions, from pictures and from negatives, that were a revelation to anyone who has not noted the studies made by photographic processes; the last process, as our readers know, stands quite at the head of all. There were some fine transparencies, and a series of excellent lantern slides were shown during the exhibition.

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## THE FIRST ANNUAL EXHIBITION OF PHOTOGRAPHS OF THE COM- BINED SOCIETIES.

### REPORT OF THE BOARD OF JUDGES.

To the Committee of Arrangements:

The undersigned, a Jury of Awards, in presenting their report, desire to state that they have reached a realizing sense of the seriousness of the task before them. Had this realizing sense come sooner, it is doubtful if the subscribers would now be struggling with the problems that so cantankerously refuse to be solved in any way that is likely to be satisfactory to everybody.

The time has been far too short. The material offered in exhibition has proved far too rich to be lightly disposed of.

The questions of art and technique have opened such wide and far reaching vistas with so many interesting side issues and complications and cross considerations that it has seemed at times almost impossible to reach conclusions that could be clearly stated or satisfactorily explained.

Some work has commended itself because evidently directed by a fine sense of picturesque composition of line or effect, while technically it fell far below almost perfect photographic specimens, that, although without art feeling, were too good technically to be passed without commendation.

Your Jury have agreed that the highest aim is one that reaches above the precision of chemistry or mechanics, and gives expression to the subtle spirit that pervades all nature, whether in landscape or figure. To them this exhibition is rich in promise and bright with many examples of promise realized.

The professional photographer who studies it in the true spirit of growth, must find much that will tend to enlarge his boundaries, and the amateur cannot fail to be more deeply than ever enamored to this fascinating combination of science and art.

Attached hereto are the names of the exhibitors to whom the Jury have awarded diplomas, with such explanatory comments as the subject seemed to demand.

Respectfully submitted,

JAMES D. SMILLIE,

GEORGE C. COX,

E. WOOD PERRY, JR.,

C. Y. TURNER,

GEORGE G. ROCKWOOD.

Diplomas for excellence were awarded as follows:

To Frank Sutcliff (professional), Whitby, Eng., for the best general exhibit, showing technical skill combined with artistic treatment; to E. P. Cembrano, Richmond, Eng., and J. Prime Pond, Boston, for "the poetic treatment of landscape composition;" Geo. B. Wood, Philadelphia, for best choice of subject and composition; F. A. Jackson, New Haven, J. L. Stettinus, Cincinnati,

and P. H. Emerson, Chesweck, Eng., for "best selection of motive and management of delicate gradations, that render the simplest subject full of interest;" Alfred Clements (professional), Philadelphia, John E. Dumont, Rochester, Prof. Henry A. Rowland, Baltimore, R. S. Redfield, and J. G. Bullock, Philadelphia, and J. P. Gibson, Hexham, Eng., for best technical excellence with much artistic feeling in choice of subject; H. A. Latimer, Boston, for best prints from paper negatives; J. L. Stettinus, Cincinnati, for two instantaneous pictures, "The Diver," and "The Jumper;" Walter Clark, New York, for best instantaneous work; Franklin Harper, New York, for best interiors; C. W. Canfield, New York, for best blue prints; Dr. P. H. Mason, Peekskill, N. Y., for best enlargement by an amateur; West & Sons (professionals), and J. G. Sinclair, England, and J. Bartlett, Philadelphia, for technical excellence; Mrs. R. W. De Forest, New York, for best lady's exhibit; Miss Evelyn Welsh, New York, and Miss Elizabeth A. Slade, New York, for best lady's exhibits; R. S. Redfield, for best set of six lantern slides; F. A. Jackson, for best transparencies.

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### OUR PICTURE.

It is rarely that any magazine of whatever class, is favored with a more charming embellishment than the very natural picture which graces our current number.

Those of our readers who, while never dreaming of becoming ex-presidents, have tried to improve the breed of ducks by causing them to have a hen foster-mother, can enter most entirely into the feeling of such a picture. Personally, we can remember more than one time in our boyhood, when we stared at one and the same moment both the solicitude of the hen and the free joy of the ducklings. The daring saucy brood was ours—that was the joy of it; and, although we could swim, the babies were young and we could not help but share the fears of the mother who could not swim.

But the behavior of the ducklings teaches a moral lesson—how quickly the world tosses aside even its warmest and best friend



when no more help is needed. The little gem was made by Mr. W. W. Chapin, of Rochester, New York, who writes of its production as follows:

"Solicitude," the title which I have chosen for my study of the hen and her brood of ducks, I think, not alone describes her condition, but would very aptly apply to myself, when the thoughts of appearing in the role of a writer on photography enters my mind.

Having for some time been interested in animal photography, more especially of the larger kind, the idea was suggested of directing the camera towards some of our smaller domestic pets, and if possible, catch them by the aid of lightning plates and drop-shutter, in a position or attitude showing some peculiar trait or habit, and before they could have a chance, so to speak, of putting on their gallery "look pleasant" expression, or rather frightened look. This is a comparatively easy matter with the larger and less timid animals, but far different with some of the smaller ones; especially so where, as in this case, the ordinary slide drop-shutter was used, making it necessary for the operator to stand or kneel beside the camera, with one hand constantly on the spring, ready to make the exposure when the desired opportunity should arrive. A recently acquired "Prosch Duplex" pneumatic shutter would have made the task a much easier one, with its length of rubber tubing, had it been at hand.

Before making the attempt to get the negative of this particular picture, following the advice of Mr. H. P. Robinson, as given in his valuable little work *Picture Making by Photography*, the ground was thoroughly studied, and the plan of the view fully laid out, so that, a still day having arrived, when the light was just right, the camera was carefully placed, and, although the poor anxious mother with her little brood of such strange looking and acting chicks, had not been consulted or instructed in regard to the part they were to take, did just what was expected and wished of them. On being released from their pen, the ducks taking to the water and entering at once into a frolic, splashing and diving, and seeming to try to their utmost to add to the

fear and distress of their foster-mother; while she, all intent on her efforts to coax them by her most winning calls, from the peril which seemed to threaten them, is unconscious of the presence of the instrument and operator until the click of the drop-shutter completes the exposure.

Surely Mr. Chapin is to be congratulated on trapping such wild game so successfully. The prints were made for us by the Photogravure Co., 853 Broadway, N. Y., by their gelatine process.

### THE WORLD'S PHOTOGRAPHY FOCUSSED.

IN the *Bulletin de la Societ  Francaise de Photographie*, there is a communication from M. de Villecholles, and M. Andra, in which it is stated that a first bath of 15 gr. of kitchen salt in 100 gr. water prevents the loosening of the layer in the emulsion plates. It is asserted, moreover, that the kitchen salt first bath hastens the development considerably, in fact, more than any other known method.

The latter was not confirmed by my experiments. A Sachs's plate exposed in the stereo-apparatus, cut in half, and one part subjected to the bath mentioned, the other not, developed simultaneously and for the same length of time (with oxalate) showed no difference whatever, the half that had received the first bath came a trifle quicker, but was almost immediately followed by the other.

Also the washing away of the kitchen salt solution before the development, was without particular result. With Pertnz-Obernetter plates, no better result was obtained.

E. VOGEL.

PATENT FOR AZALIN.—The patent of Prof. H. W. Vogel, for the appropriation of chinolin red and its analogues for the production of color-sensitive photographic plates, has been taken out according to the rules of the German patent act. Therefore, the photographic use of said dyes stands under careful protection in Germany.

THE March issue of the *Photographer's World* completed its first volume. It is brighter and sprightlier than ever. Over 55,000 copies were forwarded to photog-

raphers during the first year—all free of charge.

A PHOTOGRAPHIC-PORTRAIT copyright case has been decided in England, in favor of the photographer, against a publisher who illegally engraved one of the complainant's photographs of a M. P.

COLLODIO-CHLORIDE printers on opal glass are again "the fashion" in England.

MONS. LEONE ROMMELAERE, one of our old correspondents and friend, in Brussels, Belgium, died March 16th. He was the founder of the Association Belge Photographie, and was the first general secretary and chief editor of the *Bulletin*.

THE conference of astronomers held recently, discussed principally the plans for a concerted system of photographing the heavens. The sky is to be segmented and the slices apportioned to the various observatories of the world. Negatives are then to be made which are aggregated to combine the whole heavens, and thus supply a map upon which every known star can be traced. Even the moving planets will be fixed.

MR. W. H. BURTON, our distinguished London colaborer, has accepted from the Japanese Government the "Chair of Sanitary Engineer" in the Imperial Institute of Japan, for a term of years. He carries with him our best wishes for success in his new professorship.

AS OUR esteemed correspondent, Mr. Hepworth remarked in his late "Notes from London," the discussion which follows a sound and able paper read at a society meeting often teaches as much as the paper itself. For this reason, we not only print Mr. Norman Macbeth's excellent lecture before the London Camera Club, on "Artistic Composition," but also the discussion which followed at the time and two communications concerning it, which appeared in the *British Journal* following the lecture. They will all be found seasonable and "good reading."

PHOTO-MECHANICAL prints are becoming very fashionable for the decoration of

"parchment paper" book covers. They are lovely too.

THE Photo-gravure Co.'s photo-gravure process takes the lead for book work among New York publishers.

A NEW GLASS FOR MICROSCOPIC LENSES.—It is said that a new glass has been obtained with which microscopic lenses may be made four hundred times more powerful than those now in existence. In the glass ordinarily used but from six to eight substances are used, but in the one now about to be made there are at least fourteen, of which the most important are *phosphoros* and *borom*. In a word, we are promised a lens of perfect clearness, whose refraction will be much greater than that of ordinary lenses, and this production would be due to the use of phosphates and borates in its composition. This is all we know about this subject for the present.—DR. PHIPSON.

MR. WHARTON SIMPSON'S PROCESS.—In reference to an interesting article by M. Léon Vidal, which appeared in the March 1st number of the *Moniteur de la Photographie*, styled "Prints for Projections," Mr. J. Hubert gave, before the London Photographic Association, a practical demonstration of the process in question. The formulæ used are those of Dr. Liesegang, and the collodio-chloride method is the one made known more than twenty years ago, by the regretted scientist, Wharton Simpson, whose name is well-known to all our readers.—DR. PHIPSON.

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### QUERIES, CONUNDRUMS, AND CONCLUSIONS.

"POP."—Of course, ether will evaporate quickly. Corks may be rendered perfectly ether-tight by coating them with a solution prepared from four parts of gelatine, fifty-two parts of boiling water, and one part of ammonium bichromate (added to the filtered gelatine solution), and then exposing them for a few days to sunlight.

CARL GARTNER.—In Wilson's *Photographics*, Lesson A, you will find all the points you need to "start going."

C. W. MORES.—Paraffin is the best thing for impregnation of casks which are to catch waste, etc. Tar will do well also. Besides, this treatment must be renewed. Lately it has been replaced in Germany with advantage by treatment with paraffin. Paraffin penetrates deeply in the wood, closing the pores and preventing adherence of deposits.

Paraffine is insoluble in acids or alkalies, and does not contaminate. One treatment, besides, is sufficient.

“CARBON WORKER.”—According to the *Scientific American*, the odor of benzin can be removed (rendered less objectionable?) by adding to it oxide of lead in solution of caustic soda, shaking and filtering.

## Editor's Table.

OUR friend Mr. JOHN SARTAIN, of Philadelphia, though now past his eightieth birthday, displays a spirit of energy excelling that of most younger men. After honorably filling the Presidency of the Art Commission at the Centennial, he goes to London as Chief of the Department of Fine Arts at the American Exhibition there. He sailed on the “Etruria” just a fortnight ago, and is now safely landed. We wish him much success and pleasure in his duties on the other side.

Besides these, he has lately published a book of the annals of his family—its history in America, births, deaths, and marriage—prepared in superb style, his own artistic taste being aided by experts in binding and type. The result has been a most remarkable and elegant book.

THEODORE L. DEVINNE gives expression to a hard common-sense opinion when he says:

“If a man finds himself in a trade overrun with boys and unskilled workmen, who work at cheaper rates, his only remedy is to make himself superior to the boys in skill—to qualify himself to get higher wages. If he desires better prices, he must sell a better quality of labor. It commands a better price, and he can get it if he will but try to deserve it.”

That is the lesson to learn. Quality tells in the long run.

THE Astor Library wishes the following numbers of the PHOTOGRAPHER. Any of our subscribers who have them to spare will confer a great favor by sending them to us, or we will exchange later issues for them: 1873, March; 1874, March, August, September, December; 1875, February, March, April, June, July; 1877, August, December, 1878, January to June in-

clusive; 1879, the entire year; 1880, April, June, September; 1881, January, February, March, August, October; 1882, July; 1883, January, November, December; 1884, September, December; 1885, September, April.

We would like to feel that our magazine could be found complete in the Library, and hence ask our subscribers to help us to this end.

MR. L. FARINI, the well known traveller, and now the leading photographer of Bridgeport, Conn., lately gave a most successful lantern lecture on his African trip. It was so pleasing that he has been asked to repeat it, which he will shortly do. We should think his experiences, told by him, would assuredly make a lecture of an interest to be surpassed by very few.

MR. L. T. BUTTERFIELD has settled in Sioux Falls, Dakota, and promises speedily to make an excellent place for himself there. The local paper gives him good notice, noting how he has refitted his gallery, and how high in quality his work is as shown by his specimens. We are sure he will soon, by his enterprise and good work, build up an excellent local trade.

OUR friend Mr. E. K. HOUGH, who is also the friend of many of our readers through his articles in this magazine, has removed from Winston, N. C., to Fredonia, N. Y., where he will remain permanently. We welcome him back to the North.

OUR subscriber, Mr. J. R. HANNA, of Auckland, New Zealand, has sent us a superb series of pictures, taken by Mr. G. D. VALENTINE, of the famous White and Pink Terraces, of New Zealand, one of the most marvellous and beautiful works of nature anywhere in the world.

They were unhappily destroyed by the late terrific earthquake there, and views taken after it had occurred supplement them. The views thus, besides their artistic excellence, have great interest, and we are sure our readers will enjoy them when we shortly make a mosaic of them for the journal.

*The Photographischen Wochenblatt*, No. 11, brings with it an exceedingly interesting supplement, illustrating the orthochromatic processes. There are three "Lichtdruck" prints from negatives of a card of highly colored flowers, roses red and yellow, with many shades also of green and blue. One is from an ordinary emulsion negative, one from an azalin-bath plate, and one from an erythrosin-bath plate. The series compared are most interesting, the original chromo card accompanying them. The negatives were by our friend HERR OSCAR SUCK, of Karlsruke.

PICTURES RECEIVED.—From W. J. DUNIHUE, Sinclairville, N. Y., a charming little composition of Puritan girl and boy and spinning-wheel—"John Alden"—excellent idea, remarkably well carried out in pose and composition. From H. REDMAN, Cynthiana, Ky., two excellent examples of tinted photographs, which ought to be very pleasing to his patrons. From D. FILSON & SON, Steubenville, Ohio, some good portrait work, clean and soft, the heads especially delicate and pleasant work, and one of an old man in front light—a genuine success in a hard class of subject.

MESSRS. B. FRENCH & Co., of Boston, have issued a new catalogue of their famous VOIGTLANDER lenses and euryscopes, also their DARLOT lenses, compiled by Mr. WILFRED A. FRENCH. It is a novelty in giving full and excellent descriptions of the different styles of their lenses, telling the work each is best adapted to—what they will do, and how to make them do it. There are also some excellent bits of instruction, in succinct form, on focussing and exposures, and on the general working and care of lenses.

WE have received from Messrs. BUCHANAN, BROMLEY & Co., Philadelphia, another batch of circulars that show how vigorously they hunt up and bring forward all that is good and useful for the photographer. Circulars of good journals and good books, of plates and printing paper, of trays, chemicals, backgrounds, accessories, are here. Send for it; you are sure to find something of interest in it.

SPLENDID examples of photography are to greet our readers presently from G. Cramer, J. Landy, H. McMichael, Lulu Farini, Oscar Suck, N. Sarony, W. Kurtz, C. E. Orr, C. Pietzner, and others, as rapidly as our issues can distribute them. Now is the time to subscribe. A few sets of back numbers for sale.

THIS LOOKS LIKE PROSPERITY.—We learn that the principal object of the late visit to the East of Mr. E. M. PRINCE, of L. M. PRINCE & Co., Cincinnati, Ohio, was to lay in a stock of the latest novelties in apparatus from the factory of the BLAIR CAMERA Co., of which Company the above firm are agents for Ohio. Mr. PRINCE spent several days in Boston at the Company's factory, which resulted in placing what was probably the largest order ever given for photographic apparatus in the country. It numbered in cameras alone nearly 300, over 50 of which were reversible back cameras. The Lundograph came in for a large share. This, together with extensions, plate holders, and tripods, places Mr. PRINCE, we should judge, ahead for large orders, and shows his wisdom, when we recollect the difficulty the BLAIR Company experienced in filling their orders last summer.

We also have the intelligence from Boston that SAMUEL C. PARTRIDGE, of San Francisco, Cal., another of the BLAIR CAMERA COMPANY'S progressive agents (his territory being the Pacific Coast), has deposited a very large order, although not as large as that of Mr. PRINCE. It looks quite enormous in comparison with what we have been accustomed to know of, and presume, had Mr. PARTRIDGE been "on the spot," the order would have equalled the other named. We cannot but reflect that wise heads are often found on young shoulders. Where will this Company and its agents stop? We congratulate all concerned on this fine prospect for business ahead.

MR. CRAMER, in a letter to us, states that, although he is determined to have his plates sold to the consumers at the same prices as those of other makers, he does not propose to lower his standard of excellence; on the contrary, he assures us he has improved the quality of his plates, and any one giving his latest plates a trial can convince himself that such is the case. They are better than ever before, and he is quite sure the fraternity will be delighted with them, and that his new system of making plates of all various degrees of sensitiveness that may be desired will be appreciated.





SHULZ & SÜCK

KARLSRUHE

THE

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## THE COLLODION PROCESS REVERSED.

FOR PROCESS NEGATIVES AND COPYING.

BY D. BACHRACH, JR.

IN searching for some of my memoranda of extended experiments in which I indulged some twenty years ago, very much to my surprise I unearthed a matter which I see now could have been made of practical use for copyists, photo-lithographers, etc., years ago, and I will now give it for their benefit. Those were the days when I was full of experiment, or "dabbling," as my practical friends called it, and, as usual, the "searching for the infinite and diving after the unfathomable" did not bring much cash, but lots of pleasure. Those were the days when my school chemistry was still fresh, and my bottles were labelled with a sort of supercilious pride somewhat after this fashion; for instance, the ammonia bottle was known by " $\text{NH}_4\text{O}$ ," etc., and I looked with supreme contempt upon those who were unacquainted with the bottom chemical facts of photography. On the other hand, if any one had spoken to me of "art feeling," "texture," "breadth," "proper disposition of masses of shadow," and "composition" as applied to photography, it would almost have sounded like that much Choctaw. The laboratory was then the great highway to photographic knowledge for many of us youngsters, and, as a result, I have a mass of both useful and useless memoranda of experiments.

Begging pardon for this digression, I will

state that the process described below is no chimera or theory, but one that I practically and fully tested. It was in 1865, when we were using mostly the ammonia and potassium sensitizers in collodion, which ripened and spoiled soon in consequence, and when I had much trouble from the pinhole and streak disease, that I conceived the idea that the whole thing was wrong, that we ought to have none of the infernal mess of "boiling silver baths" and all the incidental troubles of the bath solution out of order, collodion spoiling, etc., and that the whole thing ought to be reversed. With me, to dream of anything was to do it, and at once. So, after over a month of experiments in every conceivable shape, the following was the process which proved the best:

### *Collodion.*

Alcohol . . . . .	1 ounce.
Concentrated Ether . . . . .	1 "
Pyroxyline . . . . .	5 grains.
Nitrate of Silver . . . . .	8 "

I first dissolved the nitrate of silver (which must be neutral) in as small a quantity of hot water as would dissolve it, and added it to the alcohol, then the pyroxyline was added, and finally the ether. When all was dissolved it was allowed to settle, and filtered. This keeps (in the dark) indefinitely, unchanged.

### *Iodizing Bath.*

Iodide of Potassium . . . . .	22 grains.
Bromide of Potassium . . . . .	10 "
Water . . . . .	1 ounce.

The plates were coated with the collodion and dipped in the iodizer, in the

same manner as a silver bath, and when coated thoroughly (which could be determined in the same manner as in a silver bath) they were thoroughly rinsed under a tap of pure water, and were then ready for exposure. After exposure they were dipped for about a minute in a twenty grain solution of nitrate of silver (slightly acid), and the iron developer flowed over as usual. The advantages of this method are manifold. First, the collodion is always uniform, never changes, and, if more certainty is desired, the silver, can be kept separate in one-half the alcohol and mixed as wanted, in quantities for two or three days' work. Next, the iodide bath never gets out of order, no trouble about organic matter, etc., and needs strengthening only at long internals; no evaporating or other kinds of messing. Next, the plates, after rinsing, can be kept in water any length of time, a lot can be coated at once for a day's work, and, in consequence of *not* having a strong silver solution on the surface, would stand long exposures. There were no oyster-shell markings, streaks, pinholes, etc.; in fact, every plate was clean, no fog or any other chemical troubles.

There is only one thing I do not remember, and that is, whether I found it better to dip the plate in the weak silver solution *before exposure* or *before developing*. I know I worked both ways. As the plate received its coating and most important chemical change in the iodide bath, the silver dipping solution played no important part, and its exact condition made no difference in results so long as it was kept slightly acid. It only required the addition of new solution as it was used up, it lost no strength. The tannin dry plates I prepared by this method were superior to any I had seen, as there was no free nitrate of silver to leave traces, the last dipping solution not being used for them. It will be seen what an advantage this method is to concerns where large numbers of negatives are made every day for process work, as they always come out uniform and absolutely clean. They can be intensified the same as by the other process, and for "process" purposes I should use for the iodizing bath about 25 grains of iodide and only 6 or 7 grains of bromide to

the ounce of water. The same advantage is assured to large copying houses in using this method, and its economy is beyond all question. Of course, practice might result in improving on the proportions I have given, but I found these to work perfectly.

It may be asked why I abandoned the method. It had what appeared to me then one fatal defect, namely, it lacked by about one-fourth to one-third in sensitiveness, as compared to the best iodized collodion and silver bath; which objection is, of course, of no moment for the purposes I have indicated. I cannot urge this method too strongly for copyists, photo-lithographers, and the like, who find collodion negatives still a necessity.

[Translated for *The Philadelphia Photographer*.]

### ASTRONOMICAL PHOTOGRAPHY AT THE PARIS OBSERVATORY, AND THE CHART OF THE HEAVENS.

SUCH is the title of a very interesting pamphlet, published by Rear Admiral Monchez, Director of the Observatory; we here give the opening lines:

"A marked progress, the great importance of which for the future of astronomy, and the knowledge of the universe, cannot be too much appreciated, has been realized since two years, at the Observatory of Paris, in the application of photography to the study of the heavens. Messrs. Paul and Prosper Henry, as skilful astronomers as they are scientific opticians, have succeeded in obtaining, by means of apparatus constructed by them, results which greatly exceed all that has yet been done in France or elsewhere, in the photography of the stars. They have just enabled astronomers to easily make, in a few years, and with the aid of a dozen observations, suitably distributed over the surface of the globe, the complete chart of the celestial vault, comprising not only the five or six thousand orbs visible to the naked eye, but also the millions of stars, even the weakest visible only with the most powerful instruments.

"This is a gigantic enterprise, which, certainly, would not have been thought of a few years ago.



"This chart, which will be formed of from eighteen hundred to two thousand sheets necessary to represent, on a sufficiently large scale, the forty-two thousand square degrees composing the surface of the sphere, and separately, on a large scale, all the groups of stars, or all objects offering a special interest, will bequeath to future ages the state of the heavens at the end of the nineteenth century, with absolute authenticity and exactness.

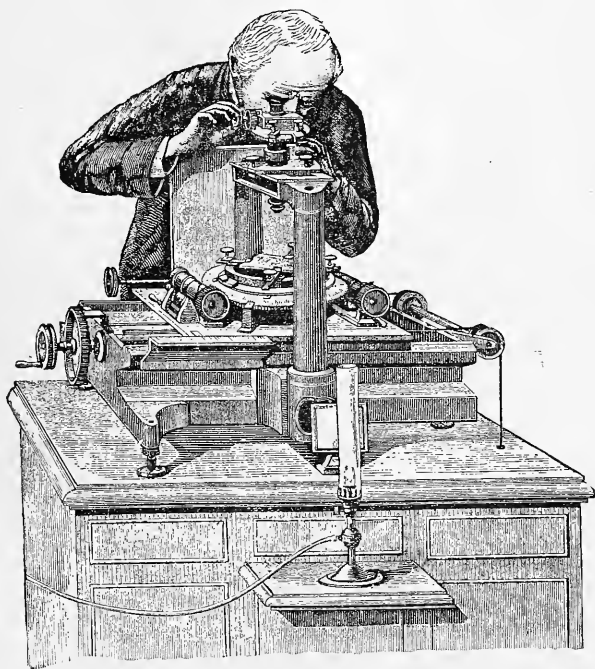
"The companion of this chart, with that which may be made at later periods, will enable the astronomers of the future to note many numerous changes in position and in size, hardly suspected or measured to-day, for only a small number of stars, and from which, certainly, many unexpected facts and important discoveries will follow. This chart will furnish besides, as soon as finished, the possibility of studying the distribution of stars in space; that is to say, the constitution of the visible universe.

their great telescope, will be surpassed and rendered useless.

"The most competent astronomers are unanimous in admitting that a complete transformation is about to be made in astronomy, opening a new era for this science."

It would be necessary to cite everything as interest increases, as we progress in the reading of this work, which is so clearly explained and so attractive.

The very remarkable investigations of Messrs. Henry Brothers, form a special chapter. We have already spoken of them and published a drawing of the photographic equatorial apparatus, and gave at the same time a photograph of the different portions of the heavens. They have never ceased since to make their method more perfect, in order that the chart of the heavens may now be made in the best conditions of accuracy and scientific identity. Several ingenious modes of controlling the work have been devised



"The celebrated gauges with which the two Herschels had attempted to classify them by regions and sizes, by the aid of

and put into operation. A very precise photometric method has been investigated, and it seems that nothing better is wanted.

The time of exposure for the reproduction of stars that are scarcely visible, and even invisible, has been verified and indicated by taking for basis the sensitiveness now existing of gelatino-bromide silver plates; the mode of making durable prints of negatives of the stars has been the object of special experiment, the results of which permit us to hope that the work now about to be done will last for centuries; and, consequently, be handed down to a posterity far removed from the time in which we live.

Messrs. Henry have had constructed a new instrument, the macromicrometer for the purpose of measuring the prints obtained by means of the photographic equatorial, and of which the following description is given by Rear Admiral Monchez:

"This apparatus consists of a chariot sliding on two horizontal rails, one of which presents a triangular section, whilst the other is flat. Motion is given to this chariot by means of a screw 0.25 millimetre in length, having a thread of one millimetre. The focus of the photographic glass being 3.43 millimetres, it follows that a turn of the screw is about equal to an interval of 1. The drum of the screw is divided into 600 parts, which gives for the value of each division 0.1 millimetre, and as it is easy to estimate  $\frac{1}{10}$  of a division, the readings may be made as close as 0.01 millimetre. The chariot is also furnished with a scale divided into millimetres, used for counting the turns of the screw. The movable system carries a circular turn-table, on which are fixed the prints to be measured. In the centre of this table there is an opening 0.18 millimetre in diameter so as to, by means of a small mirror placed underneath, give light to the plate in all its extent. This table is intended to give the measure of the angle of position of the stars that have been photographed.

"The microscope used for measuring is 200 millimetres in length; it is furnished with a micrometer and a circle of position; the screw of the micrometer which has a thread of  $\frac{1}{2}$  a millimetre, carries a drum divided into 100 parts. Each division of the drum corresponds to  $\frac{1}{8000}$  of a millimetre, or  $\frac{1}{10}$  of a second of the arc. The circle of position is graduated in degrees; a vernier

gives the tenths. The microscope may be given a horizontal position in a direction perpendicular to the motion of the chariot; during the operations, it is fixed by means of two clamps. The precision of the measures obtained by this apparatus on photographs of the stars is truly remarkable; thus, for  $\gamma$  (The Great Bear), for example, the average error for the measure of a single pair of images is equal to 0.077 for the distance; the average error of the angle of position, is of 0.55."

Chapter III. of the work of Rear Admiral Monchez, relating to *divers applications and the future of celestial photography*, is extremely interesting. Doubtless the improvements made in the processes and photographic appliances, permit the realization of a programme still more complete than the already so important one set forth with so much knowledge by the eminent director of the Observatory, but, in the meanwhile the actual methods will suffice for the execution of this magnificent project, the realization of which is now about to be undertaken by commencing with the chart of the heavens. For this purpose an International Conference will take place in April next, for the establishment between astronomers of different countries an understanding indispensable to the successful execution, in conditions as identical as possible, of the reproductions of the heavens to be used in making a complete chart.

"The principal questions to be decided upon in this International conference," says Rear Admiral Monchez, "relate to the nature and the dimension of the apparatus, to the linear and angular dimension of the negatives and charts, to the modes of projection and publication and to the choice of stations. The conference will doubtless think it necessary also to appoint a permanent commission, meeting at specified times to examine the progress made in the work from the reports received, solve the difficulties that might arise, and prepare the means of utilizing in the best manner possible the enormous number of documents which a few years will furnish. It is evident that the nature of the photographic processes to be used will play a most important part in the accomplishment of this

gigantic work, and it is essential that the conference should establish rules as precise as possible in view of the application of these processes choosing from these the best adapted to the obtaining of the most satisfactory results. It must not be lost sight of that we have to do here with stars the smallest of which have a diameter not exceeding one-fortieth of a millimetre; it is easy to conceive the delicacy of operating on such reduced images, and how necessary it is to use sensitive films pure, of a fineness of grain reduced to a minimum, and developers that are energetic and uniform.

"The photographic question is here so connected with the astronomical work that their union constitutes an indivisible whole. The purely photographic portion cannot be neglected without serious trouble in the ensemble of the work."

Among the questions indicated in the provisional programme published by Rear Admiral Monchez in the remarkable work now before us, we may mention, from a special photographic point of view, the following:

Preparation of the plates; time of exposure and minimum limit of the stars to be obtained; method of enlargement of the negatives of stars, planets, and nebulae; number of exposures or negatives to guard against accidental spots; common portion of the negatives in the same observatory; method of projection to be adopted; preservation of the negatives by vitrification or cold process, etc.

Assuredly, the work of the conference has been admirably prepared by the experiments of Messrs. Henry Bros., by the instruments they have made, and by the divers and numerous indications furnished by them relative to the time of exposure to photometry and to the methods of controlling the operations. Nothing now remains to be done but to group all this, to give it a harmonious unity, to obtain a method that is simple, complete, and capable of satisfying at all points the scientists called upon to direct the realization of this great work, one of the most astonishing of the age, which has already produced so many prodigies of science.—*Moniteur*.

## NOTES FROM LONDON.

T. C. HEPWORTH, F.C.S.

JUST as we were congratulating ourselves on the near and visible approach of spring, and had experienced one or two genial days as an earnest of what was to come; just as we were about to look up cameras and their belongings, our hopes are dashed to the ground. Snow is dashed to the ground too. The clerk of the weather has made fools of us all on this first day of April, for snow has been falling quite heavily in London this morning. When will this dismal winter end? Colds and coughs are now so common that there is no need to keep watch-dogs to guard our houses, for every one can bark. I was lecturing last week, and I had actually to make a plaintive appeal to my audience to control their coughs as much as possible; but, unfortunately, I sneezed in the middle of the speech. As my hearers applauded that sneeze, I fancy that it was rather a fine one.

The last number of the PHILADELPHIA PHOTOGRAPHER has just reached my hands. As usual, it is full of good things, but the unappreciative postal authorities label it—or, I might say, *libel* it, "second-class matter." The star photograph, with the movement of that planetoid so unerringly detected by the lynx-eyed camera, is a triumph. I am much interested in these celestial photographs, proving as they do by the multitude of bodies which they exhibit, that the chemical film can record little points of light which are quite invisible to the eye even when aided by the most powerful telescope. Several such photographs have just reached me from the Royal Observatory at the Cape of Good Hope, together with an account of the new apparatus which has been erected there for the purpose of securing them. My friend, Mr. C. Ray Woods, who is in charge of this apparatus, tells me of an approaching International Conference for the purpose of considering the basis upon which the heavens shall be mapped photographically upon a very large scale. A lens of 24 inches diameter, and with a focal length of the same number of feet, is talked about for accomplishing this work. These maps will not simply represent a triumph of

photo-astronomy, but they will be useful in making a complete catalogue of the stars, which will be a most reliable record for posterity.

I have just received a note from the London Stereoscopic and Photographic Company to the effect that they intend to offer prizes of the value of one hundred pounds this year, to be competed for under certain conditions. I, as editor of the *Camera*, am to act as one of the judges, and two others are to be chosen by the competitors themselves. I don't think that the competition will be restricted to this country, and so I give early notice of it to your readers. More about this matter anon.

The ardent photographer, like any other student of science, should make notes of his experiences, particularly if they present unusual features. Such notes, if not of use to him, may be useful to others, and so Captain Cuttle's dictum, "when found, make a note of," is one which might with propriety be displayed as an illuminated text in every photographic workroom. My own practice is to keep an index book—I mean, one of those books whose cut edges display the letters of the alphabet from A to Z, so that one may turn to an entry under any one of those letters without trouble. I have just made two notes in this book under the ominous word "poisons," which I think are quite unique. They relate, as will be presently seen, to two incidents which have lately taken place within the confines of my own home.

Here is No. 1. I had occasion to make some collodion, and being neither averse nor unaccustomed to experimental work, I commenced operations by making gun-cotton. The cotton had been duly immersed in the acid bath, washed, strained, and put out to dry on a tray in the garden. Shortly afterward, when I went out to see whether it was getting dry, I found my fowls all busy in the act of devouring it. They seem, as yet, none the worse for their explosive meal, but I shall look upon their eggs with suspicion for some time to come. My first entry in the book, therefore, is that "gun-cotton, if not a nutritious food, is not a poison."

My second entry is of a somewhat similar

nature. My eldest boy inherits the paternal love of experiment, with its hapless tendency to general mess, and the inevitable devolution of the household utensils from their original uses. In making a "graph" he had mixed up a concoction of glue, glycerine, sugar, and carbolic acid, in a pie-dish, and had left the compound to "set." The Blenheim spaniel who acts as guard to the house, smelt out this savory mess—an achievement, I might mention, which could be accomplished without any great difficulty—and ate it up. The dog is now sleeping in peaceful contentment before the fire. My second entry, therefore, states that "carbolic acid when mixed with glue, and sweetened to taste, is a food which is not disagreeable to the domestic dog."

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### HUMOR IN A GALLERY.

IN a central city of one of the larger States, twenty-five years ago, lived a United States Senator of whom you have all heard. He was a man of majestic proportions, somewhat pompous and arrogant in manner, as a United States Senator may be, and his noble brow was crowned with flame-colored hair, which shot up flame-wise.

Above the office of this Senator a young and striving photographer held forth, whose show-cases and fixings the dignified Senator was wont, from time to time, to fancy impeded somewhat his progress through the hall.

This photographer busy with his small offices we will call Bee, and this Senator, as the first letter of his name was not, we will call Kay.

One day an assistant Bee tossed, without looking, a few teaspoonsful of water out of the back window. The august Kay rushed up into the "photo. parlor" and demanded to immediately see the Bee. The Bee, gazing meekly into the Senatorial face, was met with—

"What is the meaning of this, sir? I just put my head out of the rear window, when down came a perfect deluge of water upon me."

The Bee, mildly lifting his eyes to the

flame-encircling chaplet, diffidently but wickedly asked :

"You put your head out of your window, did you?"

"Yes, sir."

"Then no doubt some of my people thought your place was on fire."

The Kay turned on his heel without rejoinder, but never after showed the least ill will toward the busy Bee.

Very different was the conduct of a bustling M.D., who had his office at the foot of the hall stairs which led to the Bee's gallery. After the following transpired, he never spoke to nor looked at the Bee again.

One of the gallery employés lost her mother, and there was no photograph, nor even tintype, of the departed. So one day, at the instance of the widower, a heavy tombstone was brought to be photographed. This substitution might seem quite sufficiently ridiculous, but as the stone was taken away it was slid down the stairs, and landed in front of the doctor's door with a thump. Out rushed the doctor.

"Halloo, Bee! what have you got here?"

"Doctor, we have brought you a sign. Where will you have it placed?"

The doctor retired to his office without indicating that he had any use for such a sign, and never seemed able to appreciate nor forgive the joke.

### THE ART OF LENS MAKING.

THE new announcement of the Gundlach Optical Co. has attracted a good deal of attention to their American productions.

A recent account of the Gundlach works gives such interesting points for the buyer and user of lenses that we make some extracts from it, as follows:

A general survey of the manufactory was first made where the skilled workmen were observed manipulating glass and metal with the aid of tools made by some of the best machinists in the country. "You may have heard, said H. H. Turner, of the company, "that the German government some time ago appropriated \$10,000 to be employed by Professor Abbe and Dr. Schott, of Jena, in conducting experiments with glass. We have here some of the fruit

produced by that action. This glass which we are using is produced by a process discovered by them and it is a great improvement on the best glass made heretofore as it is devoid of the remnant of secondary color previously found in glass used for optical purposes. The glass comes to us in plates varying from six to nine inches square and from three-quarters of an inch to an inch in thickness. We import it directly from Europe, and as none is made in this country there is no duty to pay, but it is costly enough notwithstanding, that piece of greenish tint being worth \$10 a pound. It reaches us in the rough, just as it is left by the glass blowers with the exception that each plate is polished on the edge at a few points to let the purchaser look through it and see how clear and free from blemish it is. That greenish tint which you notice is like the blue color seen in the water of the ocean, or in the sky; the color is not visible when a small piece of glass is examined. That plate is used for making the finest small lenses—we make some that are only one-fiftieth of an inch in diameter and others seven inches across. You may judge of how accurately we have to work when I tell you that the gauges we have to measure by are graduated to twenty-five hundredths of an inch. You would not have time to see the commencement and finishing of a lens. But the process consists in cutting a disk of glass out of one of the plates. It is cut out by pressing the plate against the end of a revolving tube of iron, in a drilling machine, and keeping emery and water supplied to the tube where it rests on the glass. The emery grinds the glass away so quickly that a plate an inch in thickness will be cut through in twenty minutes. The disk or cylinder cut out of the plate is divided into thinner pieces by a toothless circular saw which also eats its way through by the aid of emery. When the original cylinder has been cut into the desired number of plates each piece is ground convex or concave as may be wanted. The convex ones are brought into shape by a grindstone while the concave ones are milled out by an iron form and coarse emery. The finishing and final polish is done by the use of fine emery and rouge which latter is applied to

the glass on an accurate shell or lapp covered with wax.

In the process of grinding and polishing lenses they are cemented to round sticks, prepared for the purpose, and in this way held in the hand, while the lapp or shell upon which they are ground revolves on a finely constructed spindle. The greatest care has to be observed in finishing the lenses and fixing them in their final settings. The value of each glass depends on the skill of the individual optician who makes it, and this applies to even an opera glass, which, by the way is such an "optic glass" as the "Tuscan artist" employed in his astronomical observations. Galileo's telescope was a modern opera glass in principle. All opera glasses of any value, telescopes, microscopes, and photographic objectives are made achromatic, that is, they are provided with lenses of different refractive power to render the rays that pass through colorless.

"Is the superior quality of your work solely the result of accuracy and skill of workmanship?"

"The value of all our optical lenses rests upon certain scientific principles upon which they are constructed. Every objective, or, in fact, every lens of whatever kind, is made after a formula furnished by Mr. Gundlach. This formula prescribes, in figures, not only the exact curvature of every surface of an objective, and sometimes as many as twenty-eight surfaces enter into the problem, but also the exact thickness and diameter as well as the exact distances at which the lenses are to be mounted and also the various kinds of glass to be employed in their construction."

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### PRICES.

The P. A. of A. has treated the question of prices much as a boy treats the gold dollar in the basin of water, in the old familiar experiment, when an electric current is running through the basin. It has put out its fingers, dipped them in a little, then nervously drawn them back, and so again, but the subject of debate still lies undisturbed deep down. Meanwhile, Canada has gone in and acted, and shown them the

way, as we see the following circular spread broadcast among photographers by the Canadian Association.

ST CATHARINES, Dec. 1, 1886.

"The accompanying 8 x 10 maroon card is sent by the Photographic Association of Canada to aid the fraternity in the endeavor to return to prices, alike just to the photographer and the public. Please frame and place it in some prominent place in your studio. Whatever you do, don't destroy it, for you do not know how soon you may need something of the kind. The Association asks your aid by placing it on exhibition. It might have been sent earlier, but it was thought better to await the advent of the busy season."

E. POOLE,  
Secretary.

The resolution below from the Special Committee was adopted by the Association:

"That in order to enable every photographer to meet the demands of all classes of his patrons, we would recommend the adoption of a graded scale of prices, with \$4.00 per dozen for Cabinets as the medium standard price; a lower price to suit the requirements of the locality; while at the same time every effort be made to introduce a higher grade of work, the quality of which shall be first-class in every respect, for which a corresponding price shall be asked."

The card reads thus:

### PRICES.

The Photographers of Canada assembled in convention in the city of Toronto, Aug. 17, 18, and 19, 1886, having taken into consideration the present depressed condition of the photographic business throughout the country, desire to call the attention of the public to the following facts:

That the ruinously low prices now prevailing

#### LEAD TO THE FOLLOWING RESULTS:

- 1st. Lowering the artistic standard of the work.
- 2d. The almost necessary use of cheap materials and accessories.
- 3d. The employment of inferior assistance.
- 4th. The prevention of sufficient time and

care being given to the details in the work-room.

All of which tends to reduce the permanence, and consequently the real value, of photographs to our patrons.

*Printed by order of the Photographic Association of Canada.*

E. POOLE,  
Secretary.

[SEAL.]

## ISOCROMATIC PHOTOGRAPHY.

BY W. H. HYSLOP.

WHEN we have named Waterhouse, Vogel, Carey Lea, Eder, Ives, and Abney, we have named, almost without exception, the only men who have written upon this subject during the last fourteen years. Why is this? Is it because we are too conservative, or is it that we have not believed in the experiments and statements of these workers?

In 1885 a great cry arose throughout the length and breadth of the British Islands, and why? Because a German firm of photographers had been given permission to erect a corrugated structure in Trafalgar Square, and were allowed to photograph the national pictures. It is not necessary for me to go into the whys and wherefores of the question, but I would like to refer to a paper on the subject, read before the Photographic Society of Great Britain, by Mr. Bird, of the Autotype Company, a paper marked by extreme good feeling and a desire to give to an opposition firm the full credit due to them.

The paper was illustrated by many examples of Messrs. Braun's pictures, as well as by photographs taken some years earlier by a Berlin firm, and showing the great advance in the rendering of the various colors.

Notwithstanding the talk at the time, the subject seems to have slumbered again, and for eighteen months nothing much was heard of it, but a time of awakening came, and all credit is due to Messrs. Dixon & Sons for that awakening.

Turning now to my own experiments, I will give you formulæ, and show examples from the plates prepared by the various for-

mulae. The plates used in the following experiments are ordinary commercial plates, and the only care taken was that they should all be from the same batch.

It has been said by the unbelievers that the orthochromatic effect is a mere matter of exposure, that, supposing you expose an ordinary gelatine plate behind a yellow screen, and long enough, you will get quite as good an effect as by the staining process.

I have never yet heard any of them say how long the exposure should be in order to get the desired effect, but on the card marked A, which will be passed around, you will find prints from ordinary plates exposed on this parti-colored board, with and without a yellow screen, the others thirty and sixty seconds and five minutes with the screen.

If you examine the prints you will find that in the one exposed ten seconds there is no orthochromatic effect whatever; the light red is fairly good, but the other colors are in exact opposition to what they should be. In the thirty seconds one you find that the violet and dark blue are darker than in the first, but you find also that the orange and yellow are darker too, and the light red lost entirely; the sixty seconds plate is, I think, no improvement on the thirty seconds. We now come to the one exposed five minutes or ten times the normal exposure, and here, I think, we get an improvement. We get the light red back again, but, otherwise, there is very little difference.

I think these examples clearly show that to use an ordinary plate, exposing it a fair length of time, and expecting to get a good orthochromatic effect, is not at all practical.

The next two examples are from plates of my own preparation, and I think, if you look carefully at them and compare them with the examples from Dixon's plates, underneath, you will say that they are in no way behind, and in some things they are well ahead of, the commercial plates. The improvement is in the reds, and they give generally a better gradation.

The great trouble with them, however, is that they do not keep, and that you must pour on the bromide and ammonia first before the pyro, or else you will get silver stain; but for any who wish to have a

really good plate giving good gradation, and if they can prepare them the night before requiring, the above will give good effects.

The formula stands thus (stock solution) :

Erythrosine . . . . .	1½ drachms.
Ammonia 88° . . . . .	1 “
Alcohol . . . . .	6 ounces.
Nitrate of Silver, 1 drachm, converted into chloride with hydrochloric acid, thoroughly washed, and redissolved in ammonia and water, bulk made up to . . . . .	2 ounces.

To make up the bath take—

Stock Sol. Erythrosine . . . . .	1 drachm.
Chloride Sol. . . . .	20 minims.
Liq. Amm. 88° . . . . .	1 drachm.
Water . . . . .	6 ounces.

Place this solution in any convenient vessel, and bathe your plate for one minute; then wash well under the tap and put it aside to dry, which it will do in a few hours.

I was asked last night, by a member of the Club, what light should be used for the preparation and development.

As the change in the nature of the plate does not take place until dry after treatment, it is not necessary to use a very weak light. I use orange-glass behind ground-glass, and have not found any fog from it. I use the same for development, only taking care that direct light does not fall on the plate until the image begins to appear, after which the plates seem to stand quite as much light as ordinary.

I am very sorry that I have only had photographs from the colored board to show; had the weather been favorable, I had hoped to have had a few landscapes, taken with and without the screen.

At the meeting of the Photographic Society of Great Britain, when this subject was discussed, the question was asked whether negative paper could be treated. I replied to the effect that it could; and I have here to-day a few orthochromatized striping films, which any who care to see may examine. — *Journal London Photographic Society.*

## THE HUMOR OF IT.

A BEAUTY MANIPULATOR.—He was a small and mild man, but he had a satirical smile on his face big enough to fit a Barnum giant when he leaned back and read this memorandum of instructions from his employer :

No. 90. Pug nose; pull it down.

No. 91. Put dimple in her chin.

No. 92. She wants a new ear.

No. 93. Too much foot; pare it.

No. 94. Insert teeth in her smile.

No. 95. Cross eyed; change 'em.

No. 96. Big nose; change to retrouse.

No. 97. Too much mouth.

No. 98. Improve bust.

No. 99. Wants to be made pretty; doubt if it's possible; extra pay.

No. 100. Arch eyebrows; pout her lips and fatten her arms.

“Now that's a nice bit of work for a fellow to undertake, isn't it? I suppose after a while I'll be asked to give a woman a pretty figure, clothe her, and teach her how to talk.”

“What does it all mean?” inquired a dazed reporter.

“O! well, it's just this. I am a retoucher of photographic negatives, and am used to being asked to put new eyebrows on a woman. But the expectations of people who get 'took' are growing to such a size that it wouldn't surprise me to have a darkey come in and ask to have his complexion made white. Now here are a bundle of negatives numbered according to this list. They are all girls, and all members of a Brooklyn female school, who came over here and had their pictures taken. Each girl, of course, had a confidential talk with the photographer after the sitting, and this list of mine is the result of their instructions.”—*Sun.*

FOR A PHOTOGRAPHER'S TOMBSTONE.—  
“Taken from life.”

RESPONSE OF THE PLATE-HOLDER ON A DAMP DAY.—“Therefore I shall not slide.”

## THE OPEN CORNER.

It is our desire that our subscribers should use this “open corner” more for the discus-



cussion and presentation of matters which interest the fraternity generally. Will they not be a little freer in communicating? A generous diffusion of information makes our art grow as surely as the sunshine develops all nature and keeps up life.

A GOOD way of meeting the cheap John man on his own ground, is sent us by Mr. A. J. Riddle, of Columbus, Ga.

Mr. Riddle writes: "The Cheap John locust has about spent his force in this city, and is now floundering in shallow water. I had the backbone to *stick to old prices*, and therefore have the cream of the trade. My advertisement herewith shows how I met him:"

Photography: A. J. Riddle.—The grim visage of storms, frost, and bleak weather will soon be no more for a season. The hills and valleys will soon put on their beautiful robes of blending colors mingled with the green, welcoming the arrival of the goddess of spring. The feathered tribe's hushed song will soon carol in concert the presence of this lovely goddess, and thus does dame nature adorn herself to appear beautiful in the sight of her Lord. And so will our lovely women, sires, and sons, fashion themselves that each may be admired by the other. And there is no better way of perpetuating the evidences of their good wishes than the exchange of beautiful finished photographs such as you can have taken at 1010 Broad Street.

Cloudy weather for sitting better than a bright sunshine, as it softens the shadows, making the aged look more youthful. Hours for operating from 9 A. M. till 4 P. M. Please keep appointments.

A. J. RIDDLE,  
The High Price Photographer.

SOMETIMES it "comes back." Here is an instance. Mr. W. B. Glines, of Hutchinson, Kansas, sends us some lovely pictures of animals, and then writes:

"You will please accept these with my compliments, as I am delighted to be able to afford you a little pleasure in return for your many favors to me as a photographer. I have never forgotten your friendly criticisms and suggestions, when, eleven years ago, I started in business for myself, and sent you samples of my work for criticism.

Your kind words helped me over many a hard place."

It is pleasant to know that one is useful.

A CORRESPONDENT in Cherryvale, Kan., writes, viz.:

"DEAR SIR: I have a nephew who wants to study photography. Can you not furnish a work that will give him the necessary instructions for less than \$4 00—the price of your *Photographics*? I have a large private library, but I have never paid so much for a work of that size. Come, now, be reasonable and I will order the work you recommend."

And this from a man who wants to make an "artist" of his nephew "for less than \$4.00." Surely he must not have very exalted ideas of his nephew's ability to "study photography," or of photography itself. Neither much hope of "getting back" the \$4.00 from his nephew. We have been told that *Photographics* is "worth its weight in gold." Of one thing we are sure, nearly 6000 copies have been sold to help people study photography.

THE TALCOTT METHOD OF MOUNTING is surely and steadily winning its way, with golden opinions added. Mr. Talcott has arranged a novel method of combination with several leading photographers, which will be understood by reproductions of two of their contracts given below. The plan must be an excellent one in the hands of industrious canvassers, and we earnestly suggest it to our patrons as an admirable means of "pushing things."

*Style A.*

THE NOTMAN PHOTOGRAPHIC CO.,  
3 Park Street, Boston, Mass.

This order entitles the bearer to

*One Dozen Cabinet Photographs* for "one person," from "one negative," to be made by the Notman Photo. Co. One Picture to be Placed in a Talcott Glass Mount, Adding to the Beauty and Permanence of the Picture.

Conditions: One sitting and two proofs. Pay to Agent one dollar, and at time of sitting five dollars.

Best quality of work guaranteed.

Signed.....Agent  
Positively no other terms accepted.

Style B.

No.....

## ARTISTIC PHOTOGRAPHY.

HASTINGS,

147 Tremont Street, Boston, Mass.

*Special Rate Ticket.*

Sold only through an Authorized Agent.

This ticket entitles the holder to One Dozen Cabinet Photographs, and "One" of them finished by Talcott's Patent Process, whereby the photograph is hermetically sealed, rendering it practically indestructible; or two Fantine Panels, one of which will be finished in the same manner.

Terms.—One Dollar to the Agent on delivery of this ticket, and \$4.50 at the Studio at time of Sitting.

Good for One Year from date, with privilege of extending.

Agent.....

Reverse side.

NOTICE.—Agents are not allowed to change this ticket.

*One Price Only.*

This ticket cannot be bought at the studio.

Paid \$1.00 to the Agent. Due \$4.50 at the studio.

Engagements for sittings can be made by mail or telephone No. 462.

The Permanent Bromide Prints finished in Pastel, Crayon, Water Colors, or India Ink, will be a special feature of the many novelties designed and secured for the improvement of the art, of which the patrons receive a great benefit.

Copying in all the different styles.

On rainy or light cloudy days just as good pictures can be made.

This Ticket can be used for Duplicates or Re-orders, and will always be accepted for \$3.00 towards a life-size Pastel, Crayon, or Oil Painting, or any order amounting to \$7.00 or over.

Groups and Copies Extra.

We place these hints in the "Open Corner," believing they may serve a good purpose to many. We understand that Mr. Talcott makes special terms with photographers who adopt this combination method.

## PHOTO. FACTS AND FANCIES.

GRATUITOUS PUBLICITY.—The advertisement printed below, and which we most willingly insert in our journal is taken from No. 265 of the *Photographische Notizen*; we specially recommend it to the attention of our readers.

"A young Jewish lady, of good family, understanding everything that pertains to photography, desires a place of this kind, or, to enter in correspondence, for the purpose of marriage, with an honorable photographer belonging to the same religion. Address, *Discretion*, No. 23 P. O., Prerau (Moravia)." — *Journal de l'Industrie Photographique*.

THE IDEAS OF SIR WILLIAM THOMSON ABOUT THE SUN.—At the London Royal Institute, the learned Professor Sir William Thomson, recently gave a popular lecture on the sun, in which he asserted that his studies have led him to think that our central orb owes the production of its light and heat to shrinkage, or, to the contraction of its substance, and that his calculations have demonstrated that this heat and light will still exist during ten millions of solar years, and that they have already existed for about twenty millions of years. A few days later Mr. William Crookes gave, before the same audience, a popular lecture on the "Origin of Matter!" It is well known that Mr. Crookes is a spiritualist. In the days of Herschel, Faraday, and Davy, very different subjects were treated of within these walls.—DR. PHIPSON.

## OUR PICTURE.

THE mosaic of pictures which came to us a few weeks ago from Messrs. Shulz & Suck, Carlsruhe, Germany, has excited such a desire among our readers to see larger examples of work by our German friends that we have persuaded them to send us some cabinet negatives from which we could print direct. They embellish our current issue. We have already commented upon the splendid studio of Messrs. Shulz & Suck, and now follow with some practical hints which came to us with the other matter.

Dr. Stolze, the writer, says: "It is un-

necessary to say that all the backgrounds are painted with the greatest refinement, and belong to the best of their kind; any one who is acquainted with the pictures of this institution know this, as well as that a plastic stylish decoration of the most elegant kind in wainscoating, carved work, majolica, etc, prevails.

"So far, I have described the rooms set apart for the use of the public. I come now to the description of the separate work-rooms. Back of the house is a court, from which the entrances to the various other rooms on the ground-floor lead, and also to all the work-rooms, connected by a winding staircase.

"Right off the court, is an entrance to the room for coating the dry plates and drying them, and to the plate-room for the preservation of finished negatives. The door leading to the former, is provided with a screen on the inside, so that in entering, no extraneous light can find its way in. The window furnishes the veiled light. The walls are covered with repositories for drying plates. A second entrance leads to this room from the plate-room. Since this, on its part, has three other entrances, the preparing-room (the dimensions of which are 5.7 x 3.6 m.) can be completely closed. Through this plate room a person passes into the 4.25 x 3.1 m. large washing-room (also situated south) for the paper positives, and this room has no other entrance. Here the pictures are washed separately under a douche, as I lately saw it done at Bruckmann, and this gives a safe result. From the plate-room, as well as directly from the pathway, a door leads into the retouching-room. This is a beautiful room, and receives its light through five large windows from the north. That a room of such dimensions was necessary for this purpose affords a glimpse at the importance of the business. With this room the picture-floor ends. Directly from this leads a staircase to the office mentioned above, situated in the first story, and through this office a door on the other side leads to the mounting-room, situated above the washing-off-room. Thus the office becomes the exact centre of the business. For since a door opens out of this on to the staircase communicating with the glass-house, and since, moreover, through the mounting-room and

the winding staircase the connection with the copying-rooms is established, it is not only possible to pass easily and quickly from here to every point of the establishment, but every picture must pass this room again on its way to completion. Thus, the way from the copying-room leads to the washing-room by winding-stairs, mounting-room, office, retouching-room, plate-room, thus back again to the mounting-room through the same room, which is again passed, before the pictures are retouched, and then, finally, reach the office. In consequence of this, notwithstanding the extensive business carried on, the most exact management in relation to quality and quantity of work is established, and the eye of the chief constantly superintends all.

"Both the spacious dark-rooms, situated on the west side of the second story, have, besides the entrances from the glass-house, and the necessary room, a door to the winding staircase, so that the operators need not use the great stairs. The dimensions of both rooms, as well as their situation with reference to points of the compass, show that gelatine plates prevail almost entirely here. All arrangements are of the most approved kind. It is hardly necessary to state that here, as in the washing-room, the floor of the parterre story is asphalt, that water-cocks are found all over in abundance, and that the most practical washing tanks are present. But certain contrivances are worthy of particular mention. The varnishing-stove, often recommended in the *Wochenblatt*, is here put to use, and proves excellent. The emulsion plates, moreover, are washed (so as to remove the soda from them more easily) with the film downward in particular frames, which are laid in the water-vessel. These rooms, as well as the room for coating dry plates, and that for washing the paper pictures, are provided with light-tight ventilation tubes, so that it is impossible for a moist air to form, and thus the drying goes on quickly and surely. It is, besides, an excellent arrangement, that the west side of the house, the weather side, has a double wall, so that the pipes of the aqueduct situated here, can never freeze, and that, above all, this wall is thoroughly dry.

"The third story contains the rooms for

copying, the arrangement of which was explained in the first sketch. It is seen at once, how easy of access this is to the roof in general and to the glass roof in particular as well as to the sun. I have not yet spoken of the heat or of the cellar, because both are closely connected. The whole house has a central heater, of course, so that all the rooms can be warmed in the most convenient and the neatest manner. Every photographer knows what an important item the latter is. The heating apparatus is in the cellar, while the heating tubes run along in front of the glass wall in the studio. It is evident how much working power can be saved in this way, and how the general cleanliness adds to the value of the products of the establishment. It is evident also that no expense was spared in the drawing up of these plans. In fact, 2000 marks were placed at the command of the architects and they planned what my readers will all concur with me in styling—a model edifice.

“Since the visit of Dr. Stolze the studio of the late firm of Shulz & Suck has passed into the exclusive possession of Oscar Suck. This stately edifice is situated in the centre of the beautiful broad Kaiserstrasse, on the left hand coming from the direction of the court. Dr. Stolze further writes: Passing through the gateway into the parterre floor with its beautiful shutters and front richly decorated in sgraffito, then through the garden behind that, one enters upon a broad path paved with stone leading to the building devoted to photography. I do not know that there is in all Europe another portrait gallery, which, erected solely for photographic purposes, is arranged with so much magnificence and spaciousness. I do not think I could do better than to avail myself of Mr. Suck's kindness in showing me the plans of the structure, and describe the whole arrangement to the readers of the *Wochenblatt*, and thus make it possible for them to get a glimpse of this model institution. With the plan in my hand I will try to give an accurate description.\*

“Upon entering the portal, the beautiful

staircase leading to the first story, is seen. The whole artistic arrangement, its dimensions, the glass painting and the ornamentation show, that this is not merely an institution of needs. This impression is confirmed as one proceeds through the whole building. After the splendid stairs of easy grade have been ascended, and the roomy vestibule of six metres reached, there is seen besides the window adorned with glass painting, a single door opening into the reception room, a beautiful room of 7.4 metres in length, 5.2 metres wide, and 3.4 metres high, rich in arrangements. Besides the entrance door there are four other doors, one leading into a small, but beautifully furnished room in the style of Louis XVI., the second into the dressing-room, the third into the studio, and the fourth into the office. The latter is so arranged, that a person sitting in the office can easily see who enters the reception room. The dressing-room also communicates with the smaller reception room by a door, while a second leads directly out of it into the studio, so that models can conveniently reach this room to change their dress without being seen by others. Excellent toilet arrangements have been provided also, a matter often neglected in studios. The room set apart for this purpose corresponds to the rest of the building, its dimensions being unusual—the whole room is 4 metres long and 1.10 metres broad. Besides it is not, as is so frequently the case, a dark hole, but receives through a fine court abundant light.”

DR. STOLZE.

The prints were made for us by Messrs. Roberts & Fellows, Philadelphia, on the celebrated N. P. A. paper, supplied us by Messrs. E. & H. T. Anthony & Co., 591 Broadway, New York.

### FURTHER REMARKS UPON FINISHING BROMIDE PAPER.

BY G. HANMER CROUGHTON.

The short paper published in the PHILADELPHIA PHOTOGRAPHER (November 6th) upon this subject has brought me so many inquiries and requests for further particulars, that, unable to answer each individu-

\* See our issue for March 5, 1887, p. 146.

ally, I thought it would be best to do so in the same pages that the first paper appeared.

The questions asked of me have been so various that they cover the whole subject from enlarging to finishing in oil paste and water color. One writer asks how to get a bromide print the color of the crayon used for printing them. The rich black of a properly exposed and developed bromide print is to me one of the chief charms of the process, and is more in harmony with the usual crayon than any other print that I have used. If the print has been over-exposed, and a large amount of bromide is used to restrain during development, then the resulting print will not match the crayon, but with the right exposure and normal developer you cannot fail to get the black tone.

My directions in the last paper for finishing in crayon need no additions; carefully followed success must attend your efforts. I have received many letters about the No. 0 carte, extra fine. This is a crayon which it is very difficult to get from the art stores. We have exhausted the stock in the hands of the dealers, and shall have to wait till we can get them from Paris. In the meantime we use No. 1 carte in wood, which answers the same purpose if used with a lighter toilet, and they are much more easily obtained from the dealers in art materials. The erasers used are those sold in art stores as rubber stumps, pointed at both ends, and of three degrees of hardness. You will have no use for the hardest; the medium and soft are the two I use. The leather stumps must be firm, not soft chamois. For ink or water color I find a wash of alum (20 grains of common powdered alum to each ounce of water) a very great improvement. The alum solution must be brushed or swabbed on with a tuft of cotton, and let dry.

The effect of this alum wash is to set the gelatine film. Without it the gelatine takes the water as soon as the brush touches it, and while swelling the gelatine holds the color so that it is difficult to spread it; but after being set with the alum you can wash and blend without the gelatine absorbing the water, and without the danger of working it up into blisters. If the alum water will not spread evenly, and greasy patches

appear, use the ammonia as directed to get rid of them. The usual India ink I find too brown to match the print, so I mix a little Payne's gray with it which matches the tint exactly.

I have been surprised to hear that complaints have been made that pastel will not hold upon permanent bromide paper. This is quite contrary to my experience, and as the proof of the pudding is in the eating, I may state that Mr. Bellsmith carried a sample of pastel work with him in his last trip which extended west as far as San Francisco to as far south as New Orleans, getting such a shaking in his four months' journey as never pastel got before, and it was as good when he got back as it would have been if it been hanging upon a wall all the time. My method of working may be different to that of the artists in this country who have expressed the fear that pastel will shake off the paper. I work in my dead coloring with the soft French pastel points, covering the whole picture, background, flesh, and drapery, then hatch over with half hard and finish with the hard or Swiss crayon.

To oil, the print must first be washed with alum, as described for water color and ink work, and then must be treated to a coat of size sufficient to keep the oil in the color from penetrating to the paper. *The oil must be kept on the surface of the print*, or the paper will absorb the oil and turn first yellow and then brown, spoiling every color laid above it. Gelatine, about 20 grains to 10 ounces of water, heated in a water-bath till all the gelatine is dissolved, then one or two drops of a saturated solution of chrome alum added makes the best sizing. Use it as cool as possible, and do not neglect to use the alum first or there will be danger of lifting the paint from the paper. Brush it on, using a broad, flat camel's hair brush, and do not work it about too much.

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### MOSAICS, 1887.

WE blundered this year in underestimating the demand for *Mosaics*. One thousand more copies could have been sold than were printed. In order to fill orders we bought back from some of the dealers, over 400

copies. Not getting enough, we tried again, and received the following replies :

"I have none left."

W. D. Gatchell, Louisville.

"We have none left."

Sweet, Wallach & Co., Chicago.

"We have only 25 left, and would not care to spare them."

H. A. Hyatt, St. Louis.

"We have only one copy."

L. M. Prince & Bro., Cincinnati.

"We have no *Mosaics* to spare."

C. H. Codman & Co., Boston.

"We can let you have 6 copies only."

G. R. Angell, Detroit.

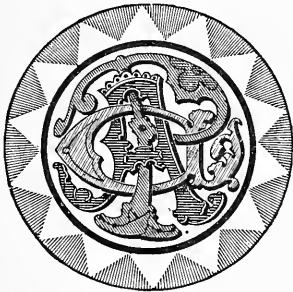
Thus it will be seen the dealers are also out. Such an unprecedented sale for any year book was never known.

We now have less than a dozen copies (no cloth), and a few are in the stock of the following dealers :

J. C. Somerville, St. Louis; Smith & Pattison, and G. A. Douglass & Co., Chicago; Remers & Katz, Milwaukee.

They will soon be gone.

### PERTAINING TO THE



COMPETITION for prizes offered by the Photographers' Association of America, at Chicago, Ill., August 9th to 12th, inclusive, 1887.

#### LIST OF OFFERS.

*Class A.*—For collection of Portrait Photography of any size. (Cabinet pictures not competing in Class C, may be included in exhibits competing in this class.

1 Grand Prize, Diamond Badge, for the best exhibit.

4 Gold Medals for superiority.

4 Silver Medals for excellence.

*Class B.*—For collection of large Photographs; contact prints not less than 22 inches long; print not to be vignetted.

1 Gold Medal for superiority.

1 Silver Medal for excellence.

*Class C.*—For collection of 24 Cabinets.

10 Bronze Medals for merit.

Parties competing for this Class cannot compete in any other Class.

*Class D.*—Composition or Genre.

1 Gold Medal for superiority.

1 Silver Medal for excellence.

*Class E.*—Landscapes.

1 Gold Medal for superiority.

1 Silver Medal for excellence.

*Class F.*—Best Marine Views.

1 Silver Medal.

*Class G.*—Best Interiors.

1 Silver Medal.

*Class H.*—Best Instantaneous Views.

1 Silver Medal.

*Class I.*—Best Architectural Photography.

1 Silver Medal.

*Class J.*—Best Photo Transparencies.

1 Silver Medal.

*Class K.*—Photography Applied to Science.

1 Silver Medal.

*Rules to be Observed by Competitors.*—All competing exhibits must be without frame or glass.

The space allowed to any exhibit shall not exceed twenty-five lineal feet, and each space allotted shall be properly filled with pictures, subject to the rules and under control of the local Secretary.

No sign of any description shall be allowed to be placed in the halls devoted to the display of photographs, except one card to every exhibit, said card not to exceed 7 x 12 inches in size, and to contain only name and address of the photographer whose work it represents.

Any picture may have its title of subject neatly inscribed thereon, but nothing of an advertising nature will be permitted.

Blanks may be had of

G. M. CARLISLE, *Treas.*,  
Providence, R. I.

## PRACTICAL POINTS FROM THE STUDIO.

**LIGHTING THE DARK-ROOM.**—At the February meeting of the French Photographic Society, M. Tondeur exhibited an appliance which he described as follows:

"I have the honor to submit for your inspection, an appliance to which I have given the name of "Lantern-Boiler; which I have used with advantage for the cooking of emulsions. It consists of a cylinder having a rectangular opening, furnished with a grooved frame to receive one, or better, two glass plates: A red one for the development of the negatives, and the other ground, to examine them. In the upper portion two chimneys, one to the right and the other to the left, to allow the gases to escape; these chimneys are covered with two plates to intercept the light. At the bottom, a concealed opening to allow the air to enter and a foundation on which rests the lamp. At the top is placed the cylinder-boiler, which has at the bottom an opening furnished with a spout closed at its extremity, and destined to be used as a heater. A movable handle attached to each side of the boiler allows it to be carried. It suffices to place either warm or cold water in the boiler and a lamp under the heater, to obtain the light of a good lantern and a water-bath whose temperature is sufficiently elevated for the requirements of photography.

**TO ENAMEL ALBUMENIZED PAPER PRINTS.**—Very clean plates are carefully talced and covered with a film of normal collodion, at from one to one and a half per cent. of azotic cotton. These plates may be kept in grooved boxes to be used as wanted. When a print is to be enamelled, take one of these plates, wash and place it at the bottom of a dish filled with water, place the print, which has been previously soaked on the plate, the albumenized side against the plate; take out of the water the superbased plate and paper and sponge between sheets of bibulous paper, changing them often, until the disappearance of all excess of water; now heat the plate over an alcohol lamp, and at the end of from two to three

minutes, at a moderate temperature, the print separates from the plate and is found to be enamelled. In five minutes all is done. If not hurried, allow to dry until the following day, the print is then more brilliant. With a little practice it is possible to enamel twelve prints in less than half an hour.—*Moniteur.*

**ALBUMENIZED PRINTS.**—Dr. J. M. Eder recommends the following process for giving a fine polish to albumenized prints: The mixture ordinarily used consists of 3 parts of white wax in 5 parts of essence of turpentine, to which, in order to obtain greater brilliancy, may be added gum arabic or varnish.

The following mixture gives, says Dr. Eder, excellent results:

White Wax . . . . .	100 grammes.
Gum Dammar Varnish . . . . .	4 "
Rectified Essence of Turpentine	100 "

Keep in a very dry bottle. When this mixture thickens add a little essence of turpentine. Gum dammar varnish (3 to 3½ parts of the gum in 24 parts of the essence of turpentine) gives a brilliant varnish. It is applied to the print by means of a rag.

**PROCESS FOR RESTORING YELLOW NEGATIVE PRINTS.**—A simple process to restore negative prints strengthened with mercury, and which have become yellow, is the following: Treat the plate with alcohol to remove the varnish, and plunge it into water for a few moments; now cover it with sulph-hydrate of ammonia (operate in the open air on account of the odor), and the print will immediately assume its primitive aspect. Wash in abundant water.—*Deutsche Photogr. Zeitung.*

**TO BLEACH GUM LAC FOR THE NEGATIVE VARNISH.**—Here is the process that I use to bleach gum lac in order to make from it a transparent and colorless varnish:

Dissolve paste gum lac in a boiling solution of ordinary potash. After cooling, the gum lac combined with the potash is solidified by separating from the liquid, which last is rejected and another solution made in boiling water. When the solution is cold add Javelle water, then chlor-hydric

acid diluted with water. Discoloration is instantaneous and the gum lac is precipitated. This precipitate should be thrown on a coarse towel and washed in several waters; drain and allow to dry. When this powder is perfectly dry it is dissolved in alcohol, and, after filtration an excellent varnish for negatives is obtained.—*Progress Photographique*.

**IMPROVED NEGATIVE FRAME**—At the last meeting of the French Photographic Society, M. Marius Sauret showed a negative frame, to which he had adapted a strip of wood covered with velvet, and pressed by a spring against the shutter so as to prevent any passage of the light. In a word, he has adapted to the frame an arrangement analogous to that used for tourist's cameras, for the purpose of preventing the passage of light between the frame and the body of the camera.

**PHOTOGRAPHY ON PARCHMENTED PAPER COVERED WITH GELATINE**.—A letter from Mr. Raymond, Director of the French Autocopiste Company, points out a new application of the material used in this process to phototypy. The parchment sheets covered with gelatine, are sensitized with bichromate of potash, exposed against a modelled negative, then, all the preliminary operations being ended, they are stretched while damp in the frame, inked and printed in the same way as ordinary phototypes. This application is very ingenious and when perfected will materially increase the services rendered by the Autocopiste, by making it give photographic impressions of line and half-tone subjects.—*Moniteur*.

**MR. JOHN PENNINGTON**, in *The Amateur Photographer*, gives the following clearing solution: Saturated solution of alum, 1 pint; hydrochloric acid, 1 ounce.

In using, take just sufficient to cover the negative. One dose will clear many negatives, but do not pour it back into the bottle after having used it.

**SCHUMANN'S CYANINE ORTHOCHROMATIC PROCESS**.—Soak the plates for at least two minutes, in

Ammonia . . . . .	½ to 4 parts.
Water . . . . .	200 "

Then immerse for two to four minutes in

Strong ammonia . . . . .	2 to 4 parts.
Absolute alcohol . . . . .	10 "
Cyanine in absolute alcohol (1:500)	5 to 10 "
Distilled water . . . . .	200 "

The last solution must be freshly made, as it will not keep. Dry in complete darkness. The plates used should be of moderate sensitiveness, and should contain no silver iodide. They will not keep for more than a week. Use pyro-potash developer.

**MR. W. S. WILSON** sends to *The Amateur Photographer*, the receipt for a very simple developer. It is—water, 2 ounces; dry pyro, 4 grains; concentrated ammonia, 4 drops from a dropping-bottle; bromide of potassium (10 per cent. solution), 4 drops from a dropping-bottle.

Some plates would require less pyro. The image is said to appear in about five seconds (on instantaneous plates), and development is complete in five minutes.

**ABOUT SPIDERS**.—A superstitious reader having found a spider on his photographic journal, writes to us to know if this is not an unlucky omen.

After mature deliberation, we reply that the spider in question was seeking, among the advertisements, what dealer had not yet made use of our publication, in order that it might go and quietly spin its web on the door of this presumptuous man, who, of necessity can have no customers. Not a bad idea, is it?

**ON THE DRYING OF GELATINE NEGATIVES**.—The manner of drying a negative has great influence on the intensity of the image. Thus, a negative dried near a stove is stronger than if it had been dried at the ordinary temperature. It is possible in this way to strengthen a negative without using mercury. It suffices to wet it several times and to dry it each time as rapidly as possible.—*Deutsche Photographen Zeitung*.

**TESTING COLORING MATTERS FOR ISOCROMATIC PLATES**.—Mr. Bothamley has described a process for testing the coloring substances used in making gelatino-bromide plates isochromatic (orthochromatic). To



ascertain if any color will act as a sensitizer, and for what rays (tints of the object to be reproduced) its action will be efficacious, it is necessary to examine it by the spectroscope, and to note the position and the nature of the bands of absorption that this coloring matter produces in the spectrum. The portions of the spectrum in which these bands are produced, will be those for which the plate treated by this coloring matter will be sensitized. Thus, if a strong band of absorption is observed in the yellow of the spectrum, it is for the yellow tints that the sensibility of the plate will be great. We have described many years ago, this method of observation, and our very simple apparatus allows the examination, at the same time, of the solar spectrum and the spectrum of the coloring matter, so as to determine very precisely the colors corresponding to the bands of absorption. For the uses of photography it is necessary, as Dr. Vogel and Mr. Bothamley have shown, to mix the coloring matter to be examined with a little gelatine, and to spread a thin film of this mixture on a glass plate, on which it is allowed to dry, and then an examination is made with a spectrocope of the bands of absorption produced by this coating of tinted gelatine.—*Dr. Phipson in Paris Moniteur.*

PHOTOGRAPHY AT 7 O'CLOCK P. M., AT CALCUTTA.—Major Waterhouse has sent to the editor of *Photographic News*, some prints obtained at 7 o'clock in the evening, representing the fireworks and the illuminations during the recent festivals at Calcutta. The exposure lasted 70 seconds, the gelatino-bromide plate having been made isochromatic by means of erythrosine. The reproduction of the park, Eden Gardens, with its crowds of promenaders, its numerous vehicles, and its illuminated shrubbery, was a perfect success, and the fireworks, on the print, resemble spouting fountains. These results were obtained with isochromatic plates prepared by Attout & Tailfer, which gave details of objects distant half a mile, also with plates prepared by the author, and with extra sensitive plates of Mr. Thomas, tinted with ammoniacal erythrosine. But these last had a tendency to fog.

A REMEDY FOR GREEN FOG.—In regard to the green fog on gelatino-bromide plates, about which so much has been formerly written, Mr. Bothamley thinks that he has found a rather simple remedy, provided the green tint has not penetrated too deeply into the coating. After the plate has been well washed and drained, it should be flushed with alcohol, and the surface of the film very lightly rubbed with a piece of very soft chamois leather wet with alcohol. By this means, he says, the green fog is very quickly removed without injuring the image.

PRESERVATION OF OXYDIZABLE SOLUTIONS BY MEANS OF ILLUMINATING GAS.—At the London Photographic Association, the question was discussed in regard to the preservation of solutions of pyrogallic acid, of ferrous oxalate, in a word, of substances easily oxidized by exposure to the air in the large stock bottles. It was proposed to substitute for the air, which rests on the solutions, illuminating gas. It has been found possible to preserve solutions of pyrogallic acid unaltered for more than a year. However, Mr. Cowan has seen that a weak solution of the same substance was more or less oxidized in the space of four days, for the reason that illuminating gas sometimes contains a considerable quantity of air. Carbonic acid gas would be better for this purpose, that is to say, to fill up the space between the liquid and the stoppers of the bottles; but it would be necessary to prepare it expressly, whilst illuminating gas is always at hand and already made.

SCIENCE AND PRACTICE OF THE LENS.—At the North London Society, Mr. Mackie called attention to what he calls the "ignorance" of photographers in relation to the objective, and he wishes some journals would publish elementary articles on this important question. We are not at all of Mr. Mackie's opinion: photographers in general have very exact notions about the practical value of the lenses which they use; and as to the elementary articles, our journals have published quite a number of them. In regard to the mathematical theory of lenses, this is the province of the optician;

it embraces the higher branches of physical science, and photographers in general cannot devote their time to it.

**ENLARGEMENT BY MEANS OF NAPHTHALINIZED GAS.**—Mr. Trail Taylor has described a gas lantern for enlargements. According to him, the ordinary gas-jet not being sufficient for this purpose, the author attaches to the burner a small reservoir for naphthaline, whose vapor is carried by the gas current, giving a greater degree of intensity to the flame. For enlargements in artificial light, however, a single jet of this kind is still not sufficient; two are necessary, placed one behind the other one inch apart, and even three to obtain the best results. Besides the lens (ordinary condenser of the lantern) Mr. Taylor uses a supplementary one placed between the first and the luminous source.

**LIGHTING THE DARK-ROOM.**—In case an accident should happen to the red glass of your photographic lantern, coat a window pane with negative varnish in which a sufficient quantity of dragon's blood has been dissolved. It is sometimes well to coat both sides of the glass. Now place over the inside surface a sheet of yellow paper, made translucent with castor oil. This last is used, especially, to make the light less trying to the eye. It appears that a light is thus obtained which does not fog the plates.

**TO PREVENT THE VEIL WHICH IS SOMETIMES FOUND IN GELATINE PLATES.**—Mr. Legendecker has remarked that this veil may be avoided by rendering the emulsion acid. Eight drops of nitric acid are added to an emulsion of eight grammes (123 grs.) of silver. The plate loses a little of its sensitiveness; but the author has remarked that the development is made with more vigor.

**PRINTING IN COLORS BY MEANS OF PHOTOGRAPHY.**—In order to fully understand the method of printing in colors, let us take for example the reproduction of an oil painting. First of all a negative is made by the ordinary processes, and this is recopied from four to seven times, according to necessity, on silver emulsion plates; it is thus possible

to have the same number of diapositives. These diapositives are retouched with transparent coatings, so that whilst faithfully preserving the photographic reproduction, we produce on the positive image or glass all the depths and the means for the colors: yellow, red, blue, neutral black, and the eventual complementary colors. These diapositives thus prepared are recopied on silver emulsion plates, and we obtain in this way negatives admirably adapted to the corresponding colors, which, after retouching, give negatives well developed for the production of photographic printing plates of yellow, blue, black, etc. The printing plate produced by means of the negative, for example, for the yellow color, is printed in yellow, in a corresponding manner, as well as all the others which are printed in their corresponding color. The negatives being produced in precisely similar conditions to those of the diapositives, and coming from the same original negative, they coincide perfectly, and the printing may be done with great certainty by means of presses.

### THE WORLD'S PHOTOGRAPHY FOCUSSED.

In one of the English journals, the striking suggestion is made, that a bulb and syringe, or more popularly, a squirt, filled with silver nitrate solution, be provided to policemen as a means of marking criminals encountered at night—a method of making brief notes on them for future reference, as it were. The sunlight would print them out beautifully, and, as too many of us know, alas!—it wouldn't wash off. The tale is told of a burglar-fearing photographer, who used to keep a few flasks of bath solution on a table by his bed.

On meeting a man next day with an unusual amount of contrast between the darks and high-lights of his countenance, he would be able to say pleasantly, "Sir, have we not met before?" and invite him in a friendly way to take a little stroll towards the police station. Officers on the track would have pretty reliable marks for identification; and unless the man finished himself as a harmonious composition, with more nitrate, and then secured an engagement in

a Dime Museum, he would be easily run down. We recommend this new method of defence with especial cordiality to timid and unprotected women. A handy cupful, while possessing less penetration than the revolver, has vastly greater distribution. It is not accompanied by alarming reports and flashes, and would come more familiarly to the female hand than the pistol. It would be a poor shot that couldn't score a hit with enough out of a cupful to mark the target so it would be known when seen again.

**THE AIR BRUSH PRIZES.**—The Air Brush Manufacturing Co. will offer two prizes at the Convention of the Photographers' Association of America, to be held in Chicago, August, 1887. An Air Brush will be given for the best portrait in black and white, finished exclusively with the Air Brush, and an Air Brush will be given for the best water color portrait finished exclusively with the Air Brush. Portraits may be of any size and upon any print.

The awards will be made during the Convention by three judges who shall be members of the P. A. of A., and who shall be chosen at the time of the Convention.

Each certificate of award will be accompanied by an order upon the Air Brush Co. for one complete Air Brush.

THE President of the P. A. of A., G. Cramer, Esq., asks us to direct the attention of exhibitors and would-be prize winners to the regulations of the Executive Committee, adopted for the government of the Exhibition. That they may be more generally known and understood we give them place in this issue. A word to the wise, etc.

THE M. A. Seed Dry Plate Co. are now operating in their new factory, and are filling all orders promptly. They have shown commendable enterprise in undertaking such extensive additions as they have made to their works. They are likewise meeting the reward that comes from such generous effort.

MR. WILSON, of the Edinburgh Society, finds that a much simpler formula than that published by the Eastman Co. for the de-

velopment of bromide paper, works finely in his hands, viz.: Make a saturated solution of iron and a similar one of oxalate. To three parts of the formed add one of the latter. The mixture will be of a wine color, and will give black-purple tones.

THE Exhibition at Florence, Italy, is said to contain some wonderful exhibits. Among other things is a full file of the PHILADELPHIA PHOTOGRAPHER, from the first issue, January, 1864, to the present. We believe we are to thank Col. Ottavio Barratti for this honor.

"CAN photography lie?" is still anxiously asked by some of our co-workers across the water. The question has never been asked here but once (one foolishness of a kind is enough), and it is answered finally and for ever.

ONE of the best hearted schemes going on now is that of the editor of the London *Amateur Photographer*, namely getting up albums of photographs for the inmates of hospitals. Our amateur friends might send out many a ray of similar sunshine.

MR. W. JUDD, Mancelona, Mich., writes: "I admire the PHILADELPHIA PHOTOGRAPHER more than ever. It is not only better than last year, but is gradually educating me to more fully appreciate artistic photography. No photographer can afford to be without it, whether he is in the business for just what dollars he can get out of it, or for the refined pleasure of being an art photographer, or both."

How useful we should be, and how our art would grow if there were 10,000 photographers like minded.

DR. JOHN VANSANT, whose interesting paper appeared in our last issue, has sent us some very interesting examples printed by his method. One of the U. S. Marine Hospital at Mountain Lake, Cal., was made from a negative exposed with Dr. Vansant's diffraction diaphragms, no lens being used. The aperture was  $\frac{1}{1000}$  diameter, distance from the diffraction to the plate 3 inches, and exposure 45 seconds. Every line; even

to those of the flying flag, is fine. Thus a picture taken without a lens, and printed without ordinary sunlight. Where now are the old, old theories?

OUR friend and correspondent, Mr. C. C. Vevers, Horsforth, Eng., met with a painful accident a few months ago which deprived him of the use of his right hand. He is now better. In a batch of bromide and other prints sent us recently is one of the porch of old Adde (Adel) Church (1140 A. D.), which is a fine specimen of Norman architecture. Mr. Vevers is an enthusiastic photographer, and is not backward about speaking good words for our American books—*Mosaics*, *Photographics*, etc.

ON page 188 our careless types spelled the name of the distinguished Astronomer Royal of Scotland, Smith, instead of Smyth. Likewise they said, "commending" for commanding, and "compare" for compute, near the end of the left-hand column. And we should have said "*Little Planet*" in our title, instead of *Star*.

We have received from the generous astronomer and friend two more of Mr. Robert's pictures:

1. A view of his Astronomical Photographing Equatorial and its Dome.
2. A photograph representing the great nebula of Orion. We shall reproduce them presently.

PROF. HERSCHEL and a New Castle photographer have been photographing the solar spectrum with *eosin* plates, but so invariably with no sensible alteration from the result obtained with dry plates, that they have totally "lost faith" in alleged orthochromatic photographs.

A FINE autoglyph by the Ives process, from one of Mr. Oscar Suck's negatives, will grace an early issue of our magazine.

"SAD, Sad News," the magnificent genre picture of Mr. Carl Pietzner, which attracted so much attention at the St. Louis Exhibition last year, will be produced by Mr. F. Gutekunst's phototype process, for one of our near future embellishments.

WE have obtained from the American Art Association, N. Y., a number of engravings from paintings in their late exhibition with which to illustrate some art papers we have in preparation for spring reading.

THE Chicago Lantern Slide Club is flourishing and growing in popularity. Mr. Enoch Root recently lectured before it on "Composition," with illustrations, at the house of E. D. Fisk, Esq. The club recently held a conversazione on lenses. The discussion by Messrs. Hough, Fuller, McIntosh, Raymond, Edwards, Burnham, and Douglass, was most valuable and interesting.

THE Chicago Photographic Society has also had some interesting meetings of late. The development of paper negatives was one of the topics. There are some wise heads and good practical talkers in the Society now. They tell what we all know, and much that we don't, in choice, terse style.

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### BROMIDE OF SILVER GELATINE EMULSION PROCESS.\*

BY WALTER E. WOODBURY.

(Continued from page 249.)

15. Red or brownish-yellow veil when developing with the pyrogallic developer.

*Reason A.*—When the gelatine emulsion has been prepared with a superfluity of silver. This reason is seldom valid now with the emulsions at present prepared by the trade.

*Reason B.*—Faulty pyrogallic development. The veil covers the plates just the same when too much ammonia is in the developer; when the pyrogallic solution is too strong, or when it has been too long in the developer.

*Remedy.*—Decrease the alkali and increase the bromide in the developer. These particular faults occur exceedingly seldom when the developer with soda is used.

*Reason C.*—Use of old pyrogallic solution which has turned brown.

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\* Translated for the PHILADELPHIA PHOTOGRAPHER from Pizzighelli's *Handbuch der Photographie*, Band I., 1886.

*Remedies.*—Treat the negatives after the fixing with a mixture of 3 parts hydrochloric acid and 100 parts saturated solution of alum, and the veils will vanish directly.

*Reason D.*—Unequal red or yellow veils arise when the plate has not been equally covered by the developer, and when the air has entered irregularly.

*Remedy.*—Same as in the last case.

16. Green veils with pyro developer.

*Reason.*—They appear to proceed from dissolved bromide of silver in the emulsion. These green veils appear most easily with pyro and ammonia, more seldom with soda and potash, never with oxalate of iron developers. Generally this veil has the characteristics of being bi-chromatic that is to say, the fixed negatives appear in a reflected light green, and in a direct light a faint reddish color. It may be removed by oxidation, by superoxide of hydrogen.

*Remedies.*—Abney's method. According to Prof. Vogel, every green veil can be removed with certainty by laying the fixed and washed plate in a diluted iodine solution as follows:

Iodine . . . . .	1 gr.
Iodide of Potassium . . . . .	4 grs.
Water . . . . .	1000 c. cm.

until the green veil turns yellow. Then lay in hypo and wash.

17. Yellow or red veils when the oxalate of iron developer is used.

*Reason A.*—If the developer has been badly washed out, the hypo assumes a yellow color, and imparts the same to the negative. In the same way the negative assumes a yellow color when the sulphate of iron solution is old and not acidified.

*Remedies.*—Add a few drops of sulphuric acid to the sulphate of iron.

*Reason B.*—Similar discolorations easily occur if the same fixing bath is used for plates developed with pyro.

*Remedies.*—Bathing in fresh hypo. Employing a bath of muriatic acid:

Muriatic Acid . . . . .	3 vols.
Water . . . . .	100 "

*Reason C.*—Addition of too much hypo-sulphite to hasten the process.

*Remedy.*—Same as the last.

18. White, milky veils, after dissolving with iron oxalate.

*Reason.*—This is the particular veil described by Dr. Eder as a lime-veil which appears when the plates before and after developing have been washed with hard spring water, containing much lime. The white veil is not harmful, as in copying it allows light to pass completely through it, and in the later process of varnishing, disappears entirely. It may, however, be removed with strongly diluted muriatic acid.

19. Plates covering themselves during development with a yellow, sandy powder.

*Reason A.*—Mixing the oxalate and iron in incorrect proportions. For example, if, on mixing the sulphate of iron with the oxalate of potash, no over-plus of the latter is added, a powdery, oxalic acid, protoxide of iron will separate itself.

*Remedies.*—Increase of the quantity of oxalate of potash solution. Any of the developer remaining in the dish must be thrown away, and replaced by fresh made stuff, more carefully mixed.

*Reason B.*—Employment of oxalic acid instead of the neutral oxalate of potash; in this case the formation of a yellow precipitate in considerable quantities results. If too much acid be used the same result follows.

*Remedies.*—Self-evident.

20. White, or transparent prints or spots, which are partly perceptible on the negative during the development, but particularly in the light after fixing.

*Reason A.*—The spots are of various sizes, averaging about the size of a pin's head, and have a dark centre point. They often have a perfectly black point in the middle, and the fault can then be ascribed to bad glass. Plate glass has not infrequently pores or little holes, which get filled with rouge. This occasions a black speck, around which a sort of half-circle describes itself. Old glass plates often exhibit this fault.

*Remedies.*—Bathing the plates in muriatic acid; or, better still, use every care to employ new and unimpeachable glass.

*Reason B.*—Often fibres or threads are visible in the centre of the white spots, which occur in the preparation on the layer of emulsion before it stiffens or congeals;

when the emulsion is thin, and stiffens badly, these faults are far more deeply impressed than when it sets quickly.

*Remedy.*—Lay the plates on ice, increase the quantity of gelatine in emulsion, be more careful as to cleanliness.

*Reason C.*—When the white spots have no dark centre, but appear in other respect like those already treated of, the fault lies with the emulsion, and is difficult to correct. It appears most readily with emulsions which have not properly set before washing, and, therefore, soaked up too much water, and became soft; many sorts of gelatin, too, exhibit this fault in a far higher degree than others. The white spots occur on the stiffened plates *before the drying*.

*Remedies.*—The fault may be lessened, or totally vanished, by adding to 100 grains of the melted emulsion 3 grains of gelatine, and, in case of need, a little chrome alum, violently shaking, and filtering through leather. To lay the emulsion, when broken up small, for a couple of weeks in alcohol, is sometimes helpful, but at other times the spots only become smaller, without totally disappearing. Of course, the nearer a white-spotted emulsion approaches to decomposition by reason of its age, so much larger and more numerous are the white spots.

*Reason D.*—Little transparent needle pricks or points. These are often very small and often occur over the entire plate. *They must not be confounded with the larger, white spots treated of under the head of Reason C.*

*Remedies.*—They frequently disappear by warming the emulsion to a tolerably high degree (say, 50° to 60° C.) before using, and then allowing it to stand quietly for an hour in a milder degree of heat; then, if it is carefully poured out, a granulous sediment will be found at the bottom, and the emulsion will work clear and well. They also disappear if the washed emulsion, after being broken up, be laid in alcohol; or, again, by melting the washed emulsion, letting it stiffen, and then letting it stand for some weeks in the ice-box, covered with carbolic acid solution. Or a very long standing of the washed and broken up emulsion will sometimes cause them to disappear.

*Reason E.*—White, generally sharply outlined points or round spots, distinguishable

first during the fixing, as smooth and bright as glass, proceed from air-bubbles, which adhere to the plate during development, and prevent the access of the developer.

*Remedy.*—Constant movement of the dish, or touching the air-bubbles with the finger-tip during the development.

Air-bubbles in the film generally betray themselves by a circle or halo proceeding from the enclosed air becoming visible on the transparent, white spot. Small air-bubbles in the film are likely to be confounded with the needle-points treated under heading D. The faults always disappear if the operator be careful to shake the completed emulsion, filter it well, and to place it aside, and use only after the lapse of several days.

21. Round faint spots, which are visible on looking at the plate before developing, forming generally little cavities like dimples, and appearing in the developed and fixed negative as dark places, are unfortunately of no infrequent occurrence.

*Reasons.*—In most cases an improper proportion in mixing the bromide of silver, gelatine, and water. The more gelatine in proportion to the bromide of silver, so much the more unlikely are they to appear; on the contrary when the water predominates they appear so much the more easily.

*Remedies.*—The best is to add fresh gelatine to the emulsion. If, in addition a little chrome-alum be added, so that the setting proceeds rapidly, and farther the coated plates be laid on a cold plate or on an ice box, the operator will master this particular fault.

22. Black spots proceeding from finger prints, arise through taking up the plates with the hand either before or during the developing, while small quantities of hypo may be adhering to the fingers. With the iron developer such spots are more frequent.

*Remedy.*—Employ plate-tongs or pincers.

23. Veil, irregular cloud-like formations or streaks, are the torment of the emulsion maker.

*Reasons.*—When the emulsion is spread on the plates by means of a cold glass rod or a brush wet with a half set emulsion (this occurs less easily in coating when the plate is held free in the hand); farther, when the

last residue of an emulsion is badly mixed and laid on. Almost invariably, however, an improperly proportioned mixture of bromide of silver, gelatine, and water is the cause of the fault. When an emulsion contains equal parts of bromide of silver and gelatine and but little water, veils almost always appear; with a double weight of gelatine and a sufficient quantity of water these faults are almost never found, especially if the hard glue be mixed with something soft. They arise more easily with the employment of quickly setting hard gelatine—less easily with soft. If a too-thick emulsion sets while the operator is still moving the plate during coating, clouds may also be expected. In this case the emulsion must be diluted with water.

24. Formations resembling cells in bee-hives visible before developing.

*Reasons.*—Too much alcohol in the emulsion. Either too plentiful addition of alcohol or keeping the emulsion too long under it.

*Remedies.*—Greater prudence in adding the alcohol; with emulsion kept under alcohol; wash well before using.

25. Irregular, tooth-like or jagged lines, and sharply outlined spots.

*Reason.*—Too little developer in the dish, so that it cannot flow over the whole surface in a sufficiently short time.

*Remedy.*—Bathing the plates previously in water, by which means one can work with but little of the developer.

26. The image appears weak.

*Reasons.*—This appearance is usually the consequence of over-exposure. If the operator forces the development by increasing the quantity of ammonia or reducing the quantity of bromide of potassium in the developer too much, the picture will appear extraordinarily quick, but will always appear weak and never with contrasts.

*Remedies.*—Increasing the quantity of restrainer in the developer, or beginning the development with old developer. Highly sensitive emulsions are more inclined to weakness than less sensitive ones, but only with improper developing. Over-exposed, weak negatives may be greatly improved in the following way: The fixed negatives are washed, then bathed with a solution of

chloride of mercury, again washed and then laid in extremely diluted cyanide of potassium solution. The picture must be carefully watched and laid before the shadows are sufficiently clear, out of the bath into a dish of pure water, in which the remainder of the cyanide left in the film will complete the deep shadows. If it be still found that the picture is wanting in power, which as a rule will not be the case, it must be again strengthened in the ordinary way with chloride of mercury.

27. The image appears harmonious but too thin.

*Reason A.*—Too short developing or too weak a developer. A longer development or increasing the concentration will always prove helpful even when the emulsion is faulty. This appearance is often occasioned when the emulsion has been cooked at a high temperature or by the presence of little gelatine.

*Remedies.*—Modifying the developer, or mixing the emulsion with strong cooked silver oxide of ammonia emulsion.

*Reason B.*—The emulsion has been poured out too thin upon the plates, so that the coating is not opaque.

*Remedy.*—The quantities prescribed should be adhered to.

*Reason C.*—The emulsion contains much gelatine and little bromide of silver.

*Remedies.*—Adhere to the given proportions. With ready prepared plates employ some intensifier in all three cases.

28. The picture is hard, glassy, and sometimes the deep shadows are wanting.

*Reason A.*—Too short exposure and faulty correction of the developer for under-exposure.

*Remedy.*—Self-evident.

*Reason B.*—Very often too much restrainer is added to the developer in the laudable effort to do away with veils. The details will then not show in the shadows and the developer will work hard.

*Remedy.*—Throw away the developer and use a fresh one with little or no restrainer.

*Reason C.*—The emulsion was perhaps badly washed and contains still some soluble bromide; or it was not sufficiently digested, and contains the insensitive modification of the bromide of silver.

*Remedies.*—Employment of strong alkaline developer; the iron oxalate development is but little suited for this.

29. The negative is detailed but much too strong and dense.

*Reason.*—This may easily occur when the developer has acted for too long a time.

*Remedies.*—Develop the plates for a shorter time. With pyro density may also arise from an excess of the pyro itself; the quantity of pyrogallic acid must be lessened, or that of the restrainer as well, or the whole developer must be diluted. Oxalate of iron works less strongly if water be added to it, or if the quantity of restrainer be lessened. Treat ready developed plates according to one of the methods of washing already given.

30. The clear lights of the negative are surrounded by a halo.

*Reasons.*—This fault arises principally from reflections which the light shining through the coating of emulsion give off from the glass plate, and principally from the back part of it. The halos appear therefore far stronger with their films of emulsion. Strong opaque films seldom show this fault, but very frequently transparent emulsions are made over-sensitive by too much ammonia. The best is to add a little iodide of silver (say five per cent.) to the bromide of silver emulsion, it affects a yellow inactinic color, and prevents the occurrence of halos.

*Remedies.*—Partly just given. Otherwise treat the back of the plates with aurin-collodion.

31. The negative inverts itself during development and becomes a positive.

*Reason A.*—This appearance, so-called "solarization," originates mostly through strong over-exposures. Frequently in landscapes the sky alone "solarizes," or other brilliantly lighted objects.

*Remedies.*—Shorter exposure; employment of light shades or blinds. Not infrequently such over-exposed plates which, with ordinary development, would show strong symptoms of solarization, may be saved by using a very weak developer, and allowing it to operate for a short time only. For example, many over-exposed plates may be saved by using the soda developer with

a large addition of bromide of potassium which, with the ordinary oxalate developer, would be lost.

*Reason B.*—Often emulsion plates "solarize" also after a proportionately short exposure. This appearance is to be ascribed to the fact that scattered actinic rays of light had fallen upon the plate before exposure.

*Remedies.*—Plates to be kept more carefully.

*Reason C.*—If an immoderate or disproportionate quantity of sulphuric acid be added to the oxalate of iron developer, the same inversion takes place. Also, cleaning the glass plate with a rag previously diluted by hypo.

*Remedies.*—Self-evident.

32. Peeling off of the film from the glass, occurrence of bubbles, etc., the gelatine film overlapping the edge of the plate; the formation of wrinkles; distortion of the negative; all these faults were formerly of very frequent occurrence, but now, thanks to the manufacture of special hard gelatine, have become very rare.

*Reason A.*—Using a too soft gelatine, which soaks up too much water; these faults also occur after too much cooking in warm air, at the commencement of decomposition, and more frequently in summer than in winter. The operator may often fail entirely to observe that decomposition has set in, and first becomes aware of it when the coating detaches itself from the glass after the fixing process. The same fault is also occasioned by irregular drying of a bromide of silver gelatine plate when decomposition has commenced. Folds or wrinkles arise first at those spots that have dried latest.

The formation of bubbles and curled places is a consequence, for the most part, of the eliminating of the hypo, if the earlier operations have been pretty regularly carried out.

*Reason B.*—When the fixing agent or washing-water has been too warm.

*Reason C.*—Through the use of a highly concentrated fixing bath.

*Reason D.*—Treating the gelatine plates with diluted acids.

*Remedies.*—The emulsion may be improved by the addition of 2 to 3 grains of gelatine to 100 c. cm. of the emulsion with



a little chrome alum before the plates are prepared.

Ready-prepared plates which show this fault, it is customary to soak in a saturated solution of alum.

In difficult cases the fixing bath must also be mixed with alum, as follows :

Fixing Bath . . . . . 1 part.  
Saturated Solution of Alum .  $\frac{1}{2}$  to 2 parts.

In this bath the plates become milky white; the color, however, disappears after varnishing.

The presence of the fault of a tendency of the coating to peel off only to a slight extent, is evidenced by little bubbles or elevations being formed in single spots. Little injuries to the edge or border occasion the peeling off of large portions of the surface. In such cases it is often a good plan to coat the edges with tallow or vegetable varnish.

Very large bubbles may be effectually banished by the use of an alcohol bath, but little wrinkles often arise from a too rapid collapse of the bubbles, which show on the film often like dark cones. Should no spots be occasioned, the operator must, nevertheless, see that at least the surface of the coating be well washed with some salt insoluble in alcohol (hyposulphite, oxalate of iron, etc.). If the film appears strongly inclined to peel off, the best means of saving it is by coating it with raw collodion, first recommended by Abney.

33. The negative is very difficult to fix, or fixes slowly.

*Reasons.*—The ground of this lies in the molecular structure of the bromide of silver. If, for example, the bromide of silver be combined with silver oxide of ammonia at a high temperature and with much iodide of silver, or emulsionified in a concentrated condition with little gelatine, it fixes more slowly than when one produces a moderately sensitive, finely divided bromide of silver with an abundant supply of gelatine. Emulsion with ten per cent., or more, of iodide of silver; fix slowly. Also, the addition of too much chrome alum may be the reason.

*Remedies.*—Adherence to the direction given. With ready prepared plates, no other help but *patience*.

34. Red veils during the intensifying process with nitrate of silver.

*Reasons.*—Red veils easily appear if the intensifier is not moved rapidly over the plates, if the strengthening process be allowed to last too long, or if the least traces of hypo be not removed from the film, or, finally, if too little acid be put to the intensifier.

*Remedies.*—The red veil can frequently be made to disappear by diluted muriatic acid (one to two per cent.), and a strong solution of common salt.

### A BRILLIANT STAR PHOTOGRAPH.

WE are favored again by another star photograph accompanied by the following:

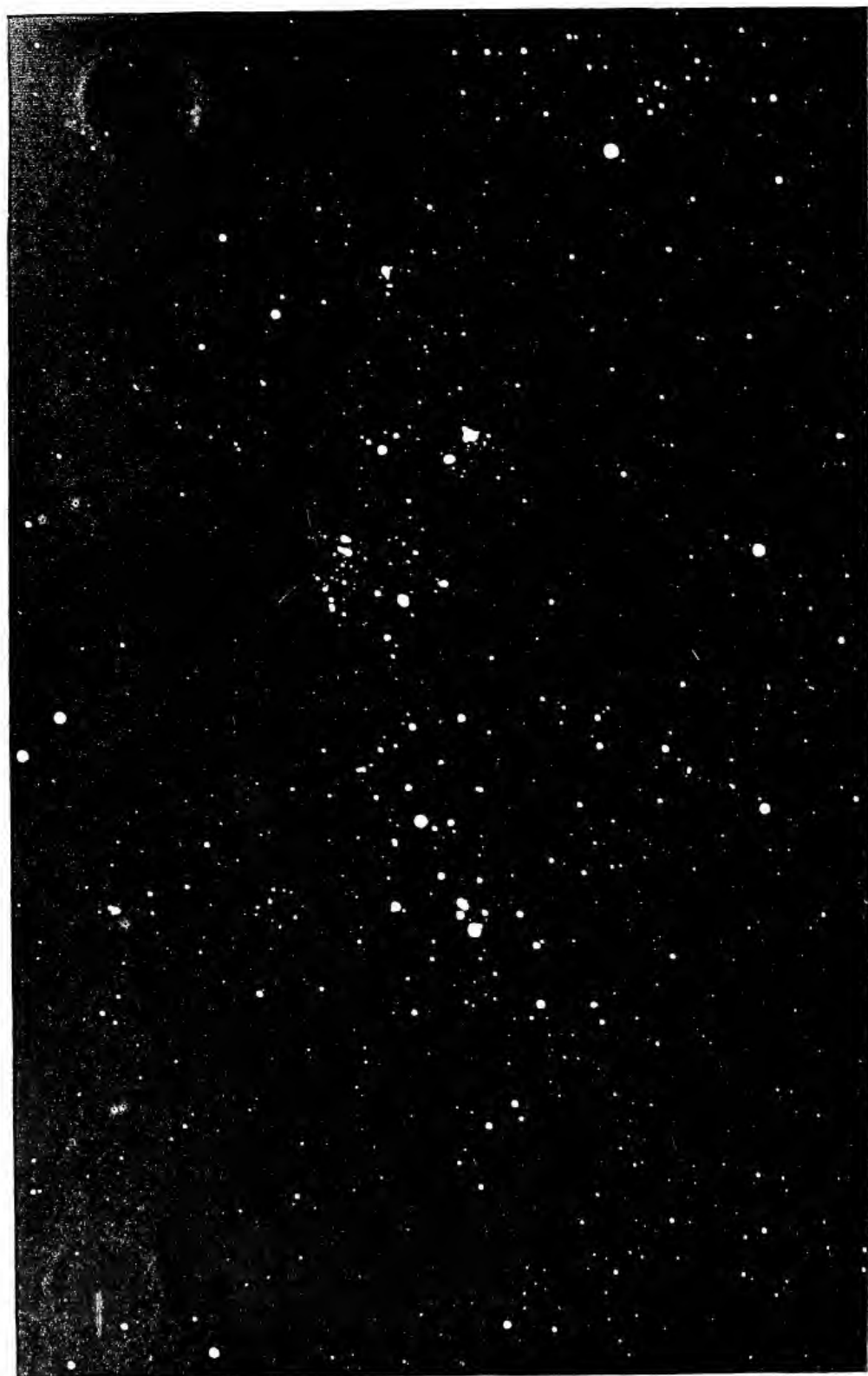
Last week I had the pleasure of a visit from Dr. Gill, Astronomer Royal from the Cape of Good Hope, and he left me, to send to you, as I did last Friday, one of his most brilliant star photographs, just of a size to form a plate in THE PHILADELPHIA PHOTOGRAPHER.

Long since it was remarked by Sir John Herschel, that the stars in the Southern Hemisphere seem brighter and closer than those of the Northern Hemisphere of the sky; confirming, in fact, old Sir William Herschel's idea, that our sun is situated in the southern half of the great ring of stars that form the sidereal universe to us. So we see in the Northern Hemisphere all across the central breadth of the greater stellar ring to the opposite side, where the stars are a very long way off indeed, and, therefore, faint. But in the Southern Hemisphere we are looking at stars in the same part of the ring where our sun itself is; therefore, are they bright and clear; in testimony whereof, look at the plate, and say whether you ever saw stars picture themselves so brightly and clearly on a sensitive plate before. I remain

Yours truly,

C. PIAZZI SMYTH.

Such favors as these from the Astronomers Royal of Scotland and the Cape of Good Hope, we most heartily appreciate. They inform us of the progressive help of our art, as well as of the worlds above.



### QUERIES, CONUNDRUMS, AND CONCLUSIONS.

M. W. C.—Our preference is for pure and unadulterated starch paste. Flour paste is made as follows:

Flour, 4 ounces (troy); water, 16 fluid-ounces; nitric acid, 1 fluidrachm; oil of cloves, 5 minims; boric acid, 10 grains. Thoroughly mix the flour, boric acid, and water, and strain the mixture through a sieve; add the nitric acid, apply heat, with constant stirring, until the mixture has thickened; when nearly cold, add the oil; strain through coarse muslin if not perfectly smooth. This paste keeps well, and is much superior to tragacanth mucilage and ordinary paste. This for mounting. When it is required pasting for labels on tinned surfaces, the addition of 10 per cent. of glycerin will prevent the labels from falling off after drying.

"POSTAL"—Of course, letter postage is charged on photographs in sealed envelopes, and then no one has a right to open the parcel. An ordinary envelope may be readily opened by moistening the paper over the gum, after which operation, if done neatly, the contents may be noted, and the missive again sealed, and sent to its destination. A perfect safety envelope, however—one not admitting of any such manipulation—may, it is said, be secured by treating that part of the paper covered by the flap with a solution of chromic acid, ammonia, sulphuric acid, sulphate of copper, and fine white paper. The flap itself is coated with a solution of isinglass in acetic acid, and when this is moistened and pressed down on the under side of the envelope, a solid cement is formed, insoluble in acids, steam, water, etc.

"SYSTEMATIC."—A neat operator will have all bottles labeled. Varnish for labels, which dries in a few seconds, and produces a colorless, smooth, and shining coat, is prepared, according to R. Kiersten, as follows: Sandarac, 53 parts; mastic, 20 parts; camphor, 1 part; oil of lavender, 8 parts; Venice turpentine, 4 parts; ether, 6 parts; alcohol, 40 parts. Macerate the ingredi-

ents for several weeks, until a perfect solution is made.

"BROKEN GROUND-GLASS."—To insure against such a mishap, try this: Paper of proper thickness is rendered transparent by soaking in copal varnish. When dry it is polished, rubbed with pumice stone, and a layer of soluble glass is applied and rubbed with salt. It is stated that the surface is as perfect as glass.

"CHEMIST."—Absorbent cotton is chemically pure.

To purify cotton-wool, macerate the commercial article for the space of ten minutes in benzol, press out the liquid, and allow the cotton-wool to dry by exposure to the air. This treatment removes any greasy or resinous matters which may be present in the samples.

"PUZZLED."—As you suggest the perspiration of your hands, in the wrong places, will discolor.

For excessive perspiration of the hands, washing with a saturated solution of boracic acid is often effective.

THE following mixture is suitable for waterproofing all kinds of woven fabrics: Linseed oil, 77; acetate of lead, 1.845; litharge, 10; amber earth, 0.4; vegetable wax, 1.3; soap powder, 1.2; madila gum, 0.7; lamp black, 4; essence of turpentine, 2; India rubber varnish, 1.555; total, 100.

PLEASE tell me through the "Question Column" of THE PHILADELPHIA PHOTOGRAPHER, the "best" developer for making transparencies and lantern slides. Also the best plates for that purpose. And oblige,  
J. W. S.

[Mr. J. Carbutt's "transparency" plates are the best for such work, and the formula which goes with them should be followed. We published it a short time ago.]

COPPER or brass wire larger than No. 18 is hard to bend. By heating to redness and plunging into cold water both these metals, it is said, will become much softened. In making joints in wires before soldering, if they are softened in this way and cleaned, excellent contact apart from the solder can be obtained.

## Editor's Table.

MR. J. E. BILLBROUGH, Dubuque, Iowa, after twenty years' faithful attention to his art, desires needed rest, and offers a bargain to the fortunate person who buys him out. See special.

MESSRS. SMITH & PATTISON, Chicago, have great difficulty in keeping up with their orders for burnishers. They write, "Our trade is tip-top any way, and we work nearly every night."

MR. LULU FARINI, Bridgeport, Conn., has favored us with several of his full life size portraits made with the SUTER lens. They are very round, sharp, and well modelled, and are in every way excellent. A *genré* picture of Mrs. FARINI and the little Missie FARINI is admirably managed, and likewise speaks well for the lenses. Mr. FARINI also speaks very highly of his "SUTER."

It was Mr. L. M. PRINCE, of L. M. PRINCE & BRO., Cincinnati, who called upon us. In noticing his order given to the BLAIR CAMERA CO., we should have said "Lucidograph," instead of "Lundograph." The mistake was so palpable, no one could have been misled by it.

THE Philadelphia Post Office failed to deliver our corrected proofs on time, of the last sixteen pages, of our last issue, hence a number of errors. The delay was inexcusable carelessness.

MR. C. G. BUSCH, Clarenont, N. H., has sent us about ten pounds of a new developing salt discovered in abundance upon his kaleidoscopic farm on Bible Hill, near Claremont. It comes to us in granulated cakes, some heart-shaped and some with scalloped edges. It is yellowish in color, though coming out light-gray on an orthochromatic plate. It is sweet to the taste, and the rapid decrease of the pile makes us suspect that our "messenger service" finds it more efficacious than our few experiments have enabled us to do. Mr. BUSCH's formula is twenty pounds of salt to six quarts of water. He has not sent us enough for a single mixture. It is labelled, "Ma Pel Sugre."

MR. A. A. WOOD, 20 Lord St., Liverpool, Eng., has just published a new edition of his admirable little brochure "A Photograph, and How to Make it." It is a "nut shell" of photographic helps.

MESSRS. BUCHANAN, BRONLEY & Co., Philadelphia, issue a new list of 57 numbers of accessories. Be sure to consult it before purchasing for spring use.

MR. JOHN CARBUTT, Wayne Junction, Philadelphia, has recently overhauled and cleaned his splendid dry-plate factory. Improvements in the coating-room and in drying apparatus enable him to undertake his summer work with unusual advantage. A stoppage of ten days has just put him back a bit, but he "will soon catch up," he writes. His plates are always at the front, however.

MR. E. S. HILL, St. Cloud, Minn.; Mr. D. BANGS, Sleepy Eye, Minn.; Mr. C. BIERSTADT, and Mr. R. GOEBEL all responded to our call for cyclone photographs, with some examples representing the dreadful doings of the wind, etc.

MR. C. H. CALVIN, Worcester, Mass.; G. W. BRETZ, Pottsville, Pa.; and Colonel SPECK, of McFARLAN & SPECK, Moravia, N. Y., have visited us recently. All enthusiasts in our art.

In *Scribner's Magazine* for May some excellent studies for instantaneous marine views will be found as illustrations to "The Development of the Steamship," by Commander F. E. CHADWICK, U. S. N.

The *Century Magazine* for May contains another one of Mr. EDWARD L. WILSON'S Oriental articles, handsomely illustrated from his photographs. The title is, "Finding Pharaoh," and tells the story of the finding of the mummy of the great King of the Exodus with the companions of his tomb. It is a picturesque article, and a strange, unique story.

LANDSCAPE photographers will find the first article in the *Century* for April one of great interest. It is by Mrs. M. C. VAN RENSSELAER, upon Canterbury Cathedral, and is embellished by some twenty splendid illustrations. The Cathedral is shown from many different points of view; and the selection of these, and the composition of the picture by Mr. PENNELL, are better than a course of lectures on these points. Carefully studied, they are crowded with suggestion. We advise every photographer to buy a copy and look over them.

THIS speaks well for "taste in card mounts":

PHILADELPHIA, April 1, 1887.

The constantly advancing demand of photographers for more elaborate and better *letter press* work on their cards, has compelled the employment of a better class of labor and material. The increased cost involved renders an advance in the price for this line of work absolutely necessary. We present herewith Revised Scale of Prices, with the remark that under this schedule of prices, as heretofore, this department of our business is conducted, not for profit to us, but to meet the needs of our customers. We are

Very truly yours,

A. M. COLLINS M<sup>FG</sup> Co.

ON March 23d the Society of German Photographers of New York, 62 E. Fourth St., held their annual meeting, at which the election of officers took place. The following gentlemen were elected unanimously:

*President.*—A. Wildenberger.

*Vice-President.*—O. Richler.

*Recording Secretary.*—A. Fesselborn.

*Corresponding Secretary.*—G. Weinig.

*Financial Secretary.*—L. Schill.

*Treasurer.*—G. E. Pellrietz.

*Archivars.*—L. Burkhardt and G. Bilgewroth.

*Trustees.*—Ch. F. Kutscher, L. Vagel, A.

Baumgarten.

After the election, the members adjourned to a social meeting.

G. WERNIG,

*Corresponding Secretary.*

MESSRS. HARVEY & LYLES, 271 Wabash Ave., Chicago, send us two fine solar enlargements by their new electric light. We do not see how this class of work can be done more perfectly. They write, "We are doing very well, and find our work gives general satisfaction."

THE GUNDLACH OPTICAL Co., Rochester, N. Y., write us in most glowing terms of the reception given to their "American lenses."

THE SCOVILL MANUFACTURING Co. have just received a shipment of DRESCHER'S gelatine, a prime article, winter made.

MR. CHAUNCEY L. MOORE, Springfield, Mass., has admitted into partnership with him Messrs. AMOS L. MERRILL and HENRY A. COLLINGS.

THE duty on albumen paper has been reduced, and consumers may expect a slight reduction in price.

THE *Ferrotypers' Guide* (price, 75 cents) has reached the seventh edition. It is practical and to the point.

SCENE at a late meeting of the New York Society. Time, reading of the queries in the Question Box.

Question 4: "Where can one, who believes that the success of a picture depends on the power to please the mind, find a course of instruction in art composition, either in a school or in a book?"

Professor SPAULDING, author and teacher says: "I should commend the little book written by H. P. ROBINSON, *Picture Making by Photography*. Instruction could be obtained at the Art School of the Metropolitan Museum, 214 E. 34th St., JOHN WARD SIMPSON, Superintendent. And I would say, also, read *Pictorial Effect in Photography*, H. P. ROBINSON; also, WILSON'S *Photographic Lessons A, K, L, and T*. Lesson A is worth more than the cost of the whole book."

Every photographer should have WILSON'S *Photographies*.

THE SAN FRANCISCO SOCIETY has had its rooms elegantly fitted up, and they present the appearance of an art gallery, and are supplied with all the modern apparatus for photography. One of the fundamental rules of the Society is that none of the members are permitted, under any circumstances, to sell any of the pictures or photographs taken by them. The membership has increased rapidly within the last few months, and now numbers fifty members. SIDNEY M. SMITH was re-elected Corresponding Secretary for the ensuing year.

A ROCHESTER paper says, "Nothing prettier in the way of a true glimpse of nature has ever been published than Mr. CHAPIN'S 'Solicitude' in the PHILADELPHIA PHOTOGRAPHER."

MESSRS. A. B. PAINE & Co., Fort Scott, Kansas, *pro bono publico* publish a list of "Delinquents and Dead Beats"—i. e., those who buy of them and fail to pay.

IN MR. M. H. ALBEE'S article (p. 230) will be found an account of one way of settling the question of prices—by the methods of the Knights of Labor. It is certainly rather a striking solution. While some of its features, especially the "scab" and boycott, are not entirely to be commended, there would seem to be some promise in it; and, although it would be quite impossible in many places to adopt this method of solving the problem, we shall watch the working of the experiment in Marlboro with much interest.

PICTURES RECEIVED.—From E. D. ORMSBY, Oakland, Cal., comes a remarkable study of an old man, perhaps a “forty-niner.” The work is good, and we especially praise the good taste that left the seamed and weather-beaten face without attempts at “making pretty” by retouching. From S. E. MADSEN, Sleepy Eye, Minn., comes views of New Orleans including the interior of St. Roche’s Chapel. From STUBER & BRO., Louisville, Ky., come a series of examples of portraiture—good, clean work, of excellent quality in fact, some of the pictures particularly commendable in judicious and pleasant lighting. From W. T. SMITH, Liberty, Va., come some interesting views of the wreck of the Big Otter Railroad Bridge near that place.

A NEW-COMER among our contemporaries is *Der Photographische Mitarbeiter*, edited by Dr. HANS LENHARD, at Vienna. It is bright and full of news, and we wish it a hearty welcome.

THE loss of part of our revised proof for the last number was the cause of unintentional slight as to the proper names to two of the non-metallic elements in Dr. PHIPSON’S article on the new glass.

WE have received from OTHOMAN ANSCHUTZ, the famous instantaneous photographer of Lissa (Posen), a series of his remarkable views. There are a number of excellent views of various animals; his work of this sort we have already noticed. Besides these, he has reproduced by the lichtdruck process a series of photographs showing the successive motions in stone and spear throwing, which are extremely interesting. He invites the correspondence and assistance of those appreciating this sort of work.

FROM the manufactory of Dr. E. A. JUST, at Westbahnhof, Vienna, we have received a number of samples of his albumen papers. Noticeable among them are some of brilliant rose and violet tints, and of extra brilliancy of gloss.

MR. J. W. BRYANT, of La Porte, Ind., issues a new catalogue of his well known papier-maché and profile accessories and photographic backgrounds. Many of our readers will doubtless find points of interest to them in it.

THE needless detention in the Philadelphia Post Office of a part of the revised proof of our last number allowed several typographical errors to slip into the journal. In Prof. PLAZZI SMYTH’S article, “How the Camera Caught a Little Planet,” as its correct title reads, his name was misspelled; and at the bottom of the first column

(p. 188) *commendig* should be *commanding*, and *compare* compute.

In the note of a new plate tong by Mr. O. S. MORRON, the types said “goes into” the plate; it should have been “goes *with*.”

CYCLONE PICTURES.—A chance for enterprise. Photographers may not know that a number of scientists are very anxious to get photographs of a cyclone. Pictures showing the damage done by such storms are plentiful, but no one yet seems to have caught the cyclone itself “in the act.” For many reasons such a picture record is most desirable. A window picture even, or one from a safe point, either of the rising or retreating storm, would be worth a good sum. The approach of the storm is sometimes gradual enough to allow of views being taken, and they would be of great value. We would exhort our friends who live in cyclone districts to keep an eye out for the next that come, and endeavor to capture them; it will be well worth their while. And if by any chance any one has already done so, and been successful, we can assure him he will hear something very much to his advantage by communicating with us.

WE are in receipt of the new catalogue and price list of the Steinheil lenses, just issued by Messrs. H. G. RAMSPERGER & Co., New York, who are the sole agents and importers of these lenses.

The catalogue shows an uncommonly varied and complete assortment of lenses constructed with special reference to different classes of work, and aiming at the highest attainable perfection in each. The arrangement of the catalogue is comprehensive and will materially assist the purchaser in his choice from among the different classes of lenses made necessary by the great and rapid advance in the photographic art science.

Among these different classes of lenses we understand that the Patent Antiplanetic Group and Portrait Lens, Series II., suitable for amateur and professional work alike, and which is Steinheil’s newest advance in the field of independent research and invention, and also the Wide Angle Copying Lens, Series VI., for photo-mechanical work of the highest order, are meeting with an ever increasing demand and favor.

The full illustrated catalogue and price list of the Steinheil lenses can be had by application to your stock dealer or to Messrs. H. G. RAMSPERGER & Co., 180 Pearl St., New York.





CHAS. BUTTERWORTH  
WILMINGTON  
OHIO.

PHOTOGRAPHE CO. N.Y.



"THE MAGDALEN"



THE

# Philadelphia Photographer.

EDITED BY EDWARD L. WILSON.

Vol. XXIV.

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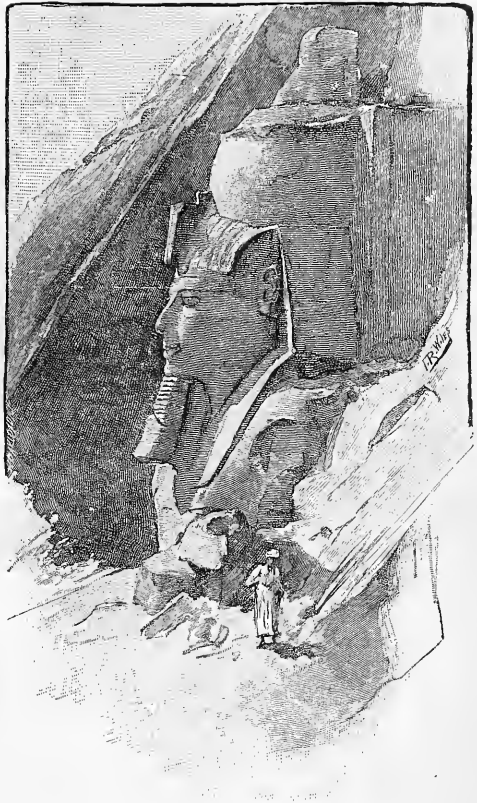
No. 298.

## PHOTOGRAPHING PHARAOH.



THE enterprise of the camera was brought to the front by the Century Co., in the May issue of their unrivalled magazine, which opens with two profusely illustrated papers of Egyptology, the special subject being

the mummy of Pharaoh the Oppressor (the Pharaoh of the Bible), otherwise Rameses II., which (together with those of other Egyptian kings) was discovered in 1881 by Professor Maspero, but not identified until June, 1886. Soon after this date Mr. Edward L. Wilson visited the spot in company with Professor Maspero and Brugsch Bey, from the latter of whom he had a personal account of the discovery, which Mr. Wilson here records, supplementing it by interesting photographs made by himself. The second paper, by Professor John A. Paine, consists of a comparison of portraits of Rameses, including some new and interesting observations confirmatory of the identification, and setting forth clearly the historical and archæological bearings of the discovery. Mr. Paine arrives at the conclusion that Pharaoh was really not an Egyptian in race or blood, but was descended from the Shepherd Kings of Asiatic origin, thus confirming the Biblical statement that Israel in Egypt was oppressed by an Assyrian. Professor Paine gives also an interesting and curious account of Pharaoh's



daughter. Together the two papers form an important chapter of interest to all students of history, and especially to students of the bible.

We call attention to these papers as an

instance of how much photography is doing to inform and instruct the millions of the world. It goes everywhere, creeps into all sorts of places, fears nothing, tries everything. And it is encouraged to do so by such generosity as is displayed by the Century Co., whose admirable engravings from the photographs are the wonder of us all.

From the first article by Mr. Wilson, the editor of THE PHILADELPHIA PHOTOGRAPHER, we quote from the *Century* this account of the way in which the tomb was located: "In a line of tombs beyond the Ramesseum lived four sturdy Arabs named Abd-er-Rasoul. They supplied guides and donkeys to tourists who desired to visit the ruins of Thebes, and sold them genuine and spurious antiquities. When they found a mummy, it being forbidden by law to sell it, the head and hands and feet were wrenched off and sold on the sly, while the torso was kicked about the ruined temples until the jackals came and carried it away. I purchased a head and hand of one of the brothers amid the dark shadows of the temple at Qurneh. Early in 1881 circumstantial evidence pointed to Ahmed Abd-er-Rasoul as the one who knew more than he would tell. Professor Maspero caused his arrest, and he lay in prison at Keneh for some months. He also suffered the bastinado and the brow-beating of the women repeatedly; he resisted bribes, and showed no melting mood when threatened with execution. His lips told no more than the unfound tomb—and not as much. Finally, his brother Mohammed regarded the offer of 'bakshish,' which Professor Maspero deemed it wise to make, as worth more to him than any sum he might hope to realize from future pillaging, and made a clean breast of the whole affair. How the four brothers ever discovered the hidden tomb has remained a 'family secret.' On July 5, 1881, the wily Arab conducted Herr Emil Brugsch Bey, curator of the Bûlâq Museum, to Deir-el-Bahari and pointed out the hiding-place so long looked for. A long climb it was, up the slope of the western mountain, till, after scaling a great limestone cliff, a huge, isolated rock was found. Behind this a spot was reached where the stones appeared to an expert observer and tomb-searcher to

have been arranged 'by hand,' rather than scattered by some up-heaveal of nature. 'There,' said the sullen guide; and 'there' the enterprising Emil Brugsch Bey, with more than Egyptian alacrity, soon had a staff of Arabs at work hoisting the loose stones from a well into which they had been thrown. The shaft had been sunk into the solid limestone to the depth of about forty feet, and was about six feet square. Before going very far, a huge palm-log was thrown across the well and a block and tackle fastened to it to help bring up the debris. When the bottom of the shaft was reached a subterranean passage was found which ran westward some twenty-four feet and then turned directly northward, continuing into the heart of the mountain straight, except where broken, for about two hundred feet by an abrupt stairway. The passage terminated in a mortuary chamber about thirteen by twenty-three feet in extent and barely six feet in height. There was found the mummy of King Pharaoh of the Oppression, with nearly forty others of kings, queens, princes, and priests."

Those of our readers who are interested in what Mr. Wilson writes, outside of this magazine, should secure the May *Century*. Altogether, it contains many admirable portrait studies.

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### PHOTOGRAPHIC FACTS AND FANCIES.

ONE of the best thinkers in our fraternity is Mr. D. Bachrach, Jr., stock-dealer, and veteran and excellent photographer, Baltimore, Md. His paper in this number is full of wisdom and worth. It will be followed soon by one equally helpful.

A paper on Herr Auschutz's remarkable pictures full of thrilling interest, and giving one new and grand ideas of the power of our art, will appear in our next issue.

To take creases out of drawing-paper or engravings, lay the paper or engraving face downward, on a sheet of smooth, unsized, white paper; cover it with another sheet of the same, very slightly damped, and iron with a moderately warm flat-iron.

THE invention of cork stoppers for bottles is attributed, according to an old chronicle, to the Benedictine monk, Perignon by name, who was butler, from 1668 to 1715, at the farm of Hautvillers, France, which belonged to that order. Previously to this time, bottles were stoppered with a flax stopper steeped in oil.

A CHEAP jacketing may be made for steam pipes as follows: Wrap the pipes in asbestos paper, and lay a number of strips of wood lengthwise, from six to twelve, according to the size of the pipe, and bind them into position with the wire; around the framework thus constructed wrap roofing paper, fastening it with paste or twine. If exposed to the weather, use tar paper, or paint the outside.

A WISCONSIN correspondent writes us, May 2d, viz.:

"Enclosed please find postal note for \$4.00, for which please send your book, *Photographics*. I have wanted it for some time, but have put off sending for it from time to time. I now feel as though I could not get along without it.

"Would you please mark, in some way, a few of the best working formulæ (if you are not too busy, and can do so)."

We made the effort to do as our correspondent desired, but concluded it was a work some one else ought to do. We have seen copies of *Photographics* in dark rooms, where almost every chapter is marked. If we prefer one part above another, it is Lesson A. As to the formula, the "Chautauqua Edition" contains an appendix which will be found "up to date." Nearly 6000 copies of *Photographics* have been sold, and the sales have fairly "boomed" since the leaves and blossoms began to come out.

TO RENDER WINDOWS OPAQUE. — A coarse method of "blinding" a window, or rendering the panes of glass impervious to light, is to paint it with a thin coat of paint. A much better method, however, and one which will render the glass apparently of the appearance as if it had been ground or "sand-blasted," is the following:

Dissolve 50 parts of sandarac and 30 parts of mastrix in 500 parts of ether, and add to

the solution such an amount of benzine that a portion of the liquid, when spread upon glass, will leave, after drying, a dull uniform coat, causing the glass to appear as if ground. When the solution is to be applied, it is advisable that the window be laid in a horizontal position. If this is not possible, the liquid may be applied by a spray apparatus, taking care that no more is applied at a time than can dry at once. Finally, where a sufficient coat has been produced, a spray of benzine may be passed over it to give it more uniformity.

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### OUR PICTURE.

THE suggestive picture which embellishes our present number, entitled "La Magdalene," is an entirely new departure. The negative from which it was produced was made by a comparatively young photographer, Mr. Charles Butterworth, of Wilmington, Ohio. It has been chosen by us on account of its merit, in the first place, and secondly, because it comes from one who has a higher ideal of photography than that which produces only portraits.

Mr. Butterworth assures us that he tries "to make pictures as well as portraits," and assuredly he has done himself credit in the present instance. He has chosen a good model, and with her generous help has carried out his conception very well.

It is very apparent that he has been swayed by his art instruction all through. The artistic exercise which the production of such a picture affords, is sure to do good. We have no doubt that Mr. Butterworth is already planning to excel his "La Magdalene," and we wish him all the success he deserves.

One of the results of his work is the article on "Ideal Pictures," which we have prepared for another page.

The prints from the "La Magdalene" negative were made for us by the Photogravure Co., New York, by their unrivalled process, and were printed in red sepia tone, that the "old masters" idea might be the more entirely carried out, for that color was much used by them in their original drawings. We think everybody is to be congratulated this time.

### IDEAL PICTURES.

THE admirable "La Magdalene" of Mr. Charles Butterworth has caused us to frame what follows, with the hope that we may be useful to those who are ambitious to exercise in the direction of "Ideal Pictures."

The success of photographic portraiture is mainly dependent on two things—*posing* and *lighting*; and, as we will devote an article to the latter on a future occasion, when we shall include the opinion and practice of some of

of the wish; and even if those could be overcome there is still another obstacle in the way. A slight examination will make manifest the fact that although every head is a study in itself, yet there is something more required to produce the effect which the artist has secured, and this will be found in the style of dress of the period, or that which was adopted for artistic purposes. These are found in loose, flowing robes, adjustable into any desired form, every fold and line of which has been made to tell



Resting at the Stile (Fragment). By H. Hartwich.

the most distinguished operators, we shall confine ourselves at present to the former.

"The success of a portrait depends much on the position of the sitter, and to secure the best position is not, perhaps, so easily decided—in fact, it is a point that cannot be determined without much patient study. To try to follow the old masters in this important direction alone, is only to fail; photography possesses certain inherent deficiencies which prevent the realization

effectively in the composition, and the absence of which, in spite of the fine head, would at once deprive the picture of most of its charm. So much is this the case, that we doubt whether even Vandyke could have made more than merely presentable pictures with the tight-fitting garments of the present day. Again: the masters, both ancient and modern, possessed a power in the arrangement of the hands to which the lens will not submit. In Vandyke's portraits the hands

in each picture are made to play an important part in the composition; but it will be at once evident that any attempt made to do the same in connection with the camera would simply result in total failure." Now this is all very true, for, while the works of the masters referred to should be the sub-

only to be used in enabling the student to steer clear of error, while arranging his subject in a position which should always be the outcome of his own mind. Such a student will soon find that each sitter has an individuality peculiarly his own, and that true success in posing consists in making



"Pomona." By Frederick Dielman.

ject of most careful study, they must on no account be copied in a servile manner, as such copies will almost invariably prove to be mere caricatures. Canons of art, like the rules of a spoken language, are to be learned by the study of the works of the best men of all periods; but such canons are

that individuality apparent, at the same time keeping his composition strictly within the laws which he has learned true art is required to obey. If the artist aim at anything short of this he may at once make up his mind to be content with a very subordinate artistic position. Equally certain is he

of failure if he attempt to pose or light by rule. Such work hardly rises above the merely mechanical, and must always be wanting in that ease and grace which, although felt by all, is only attainable by the careful study of each separate model.

It is this specific individuality possessed by each sitter that tends to make anything

We have already alluded to the recognized difficulty with which the photographer has to contend in placing the hands to any extent in advance of the body of his sitter. His lenses constrain him; and the difficulty is not confined to the advanced position, but extends to the open hand, and especially to the separated fingers in any plane.

Whenever the fingers are separated they have a thick, swollen appearance, not at all natural, imparting the idea of gout rather than grace. In some cases the defect can be remedied by the retouching, but it is better to partly close the hand, and so get rid of the objectionable feature.

In thus urging upon the professional photographers the advantages to be derived from a determination to try and raise the present standard of their pictorial work, we are aware that many will say that they would gladly do so if they could only get more suitable studies in which to operate. That can hardly be accepted as an excuse. The studio has in reality very little to do with the final result. It has a great deal to do with the comfort and the convenience with which good work may be done: but some of the best pictures have been produced in apparently the most unsuitable places. Success in the highest degree depends not on the best and most convenient studio, but on the knowledge of how best to use the place and appliances the operator has at command. This knowledge cannot, however, be obtained by any "royal road," but is the result and reward of much patient, persevering study and practical application.

As example is better than precept, we add a few examples to the splendid one Mr. Butterworth has given us. They are selected from the collection of American paintings at the American Art Galleries in this city, by permission of Thomas E. Kirby, Esq., of the American Art Association, to whom we are under many obligations for such an opportunity. They give a variety.



Twilight. By Rosina Emmet.

like copies simply caricatures, not to be remembered, because of any inability to exactly copy any admirable pose, but mainly because of its being quite unsuited to the model whom you wished to represent.

They are all photographed by possible. The first of the series, "Residing at the Seaside," will be brought to the mind of many of our traveling readers during the summer, and will be found worthy of following.

The second, "Pocahontas," is also very suggestive, and we expect a dozen efforts—after it during the coming fall.

The "Twilight" is a more ambitious subject, but it can also be arranged for the same end, and is a charming study. Somebody must do it before the season ends.

We have interspersed these with our remarks on the "Old Masters," as worthy studies from the New Masters, and now leave them for your consideration, only adding below a few thoughts on the arrangement and choice of accessories.

In no direction, probably, have photographers erred so much as in the use of accessories: and yet there is scarcely any pictorial subject that does not require the expression and character obtained by the introduction of some accessory.

Nothing has so bad an effect as a picture crowded with accessories that have no connection with the principal subject. Many good artists are to excess in this direction, and all rules of art and good taste have been so outraged by the great mass that have used accessories indiscriminately, without regard to fitness or effect, that the demand for pictures of this style has almost entirely ceased, and the bust picture, with but little more than the head and shoulders has become most in vogue.

It is not to be understood, however, that accessories count only in the objects that may be placed in the picture independent of the subject, such as chairs, tables, columns, etc.: but the drapery that may compose the costume is an important accessory requiring taste and skill in its arrangement.

It is universally allowed that Raffaele excelled all other painters in a graceful arrangement of drapery, and a natural disposition of the folds. By studying the principles of the ancients he learned to consider the figure as the principal part, and that drapery should be regarded as an accessory: that it is intended to cover, and not to conceal: that it is employed not from caprice, but from necessity: consequently the dress

should not be so narrow as to cover the whole members, nor so ample as to conceal almost, but suitably adapted to the size and attitude of the figure represented.

The portrait artist has his drapery under his control, quite as much as the painter, and there is nothing in connection with composition that requires more careful study and a keener discernance of nature than the disposition of draperies. Even the simplest bust picture, where there is no time to display its effect is wonderful in securing a proper balance of the lines and counterbalancing to the unity of the whole. But how much more important is it in a full-length figure, where its flowing lines and graceful folds may be made not only give support and symmetry to the subject, but breathe and force to the whole, by a proper distribution of light and shade.

Variety in the use of accessories is a necessity that stimulates study and invention.

You have our files—now drive us with your files.

## THE OUTLOOK FOR PORTRAIT PHOTOGRAPHY

AN OPTIMISTIC VIEW

BY D. BARRAGE, JR.

There are three things in which I have absolute faith, the progress of the race, the future of our country, and the advancement of photography. And particularly does this faith consist in the steady elimination of the degrading elements which have in the last few years been introduced into the realms of portrait photography. It may be asked what grounds I have for this faith and what evidence of prospective improvement? Let us see. I will take the examples from the worst afflicted of the large cities of the country, Baltimore, Washington, and Richmond, which, through by no means among the largest of the eastern cities, have, from the peculiar circumstances, been the worst afflicted in that section: while Chicago, of which I only have evidence through others, is, *par excellence*, the worst case among western cities. The great "cheap" boom seemed to start in Richmond, and was carried to Washington by the same fellow, who, in both cases, found a bonanza for

awhile, because the photographers of both places had not the sense to see the *nature* of the raid, before he had succeeded in "scooping them in." Had the Washington people followed my advice at the time, and acted promptly by cutting right under him, he would have been bankrupted, because he had not yet the "sinews of war" to stand it. This party had at least the honesty not to hide behind the old stale excuse given by the first "Cheap John" of this city, of "secret undercutting by others," etc., but boldly avowed that he came to make money, and that no man's cabinet photographs were worth over three dollars per dozen. Of course, when it was too late, the bulk of the others had to reduce, because his work was as good as theirs.

In Baltimore, the honest and respectable photographers had a far more difficult problem to decide. The thing was started here by a man who was already wealthy, grown so, too, by the patronage of the fraternity, and who had made a fizzle with the finest studio in this city on account of his poor work and methods. The excuse made and repeatedly published was an absolute falsehood, that of secret under-cutting by others, for it is notorious that in both Baltimore and Washington, at the time preceding these raids, the business had never been so prosperous and the prices were maintained, ranging from \$4.00 per dozen for cabinets by the *very poorest*, to \$8.00 and \$10.00 by the highest class. If there was any cutting to harm the trade, none of us of the higher-price studios seemed to feel it, and the fellow who started the raid was notoriously one of the lower-priced men as well as having the most expensive establishment.

In Chicago, which was affected some time after the fever broke out here, the same state of affairs existed, but there the cutting commenced by the poorer class of "Cheap Johns," who undoubtedly took their cue from the raid here, the same as the fellow here took his cue from his Washington colleague. It has gradually spread to all other cities more or less, but to none so generally as those enumerated. Now what is the result after nearly six years of this practice?

First, the fraternity in general has been made poorer; the cabinet card, which bore

the brunt of the cutting, has certainly deteriorated in quality among the better class of studios, compared to the standard of six years ago (partially due, no doubt, to the change from wet to dry plates), and a few, *very few*, of the "Cheap Johns" temporarily made money. Now let us see what has occurred in Baltimore and Washington. In the latter place the best and largest business is *now* done by the man who makes the best work and maintained good prices. The "original Cheap John" concluded it best to "go," after the others had for some time fought on his own tactics, and the better class has again gradually raised prices, because after the business had been divided up again by the equalization in prices, the *better men* again had the largest practice, and found that *low prices would not pay* for good work. The Baltimore "Cheap John" who, under the boom, also opened two branches in Washington, lost money on them, and sold them out, and the victims bewailed the purchase of such poor property. In Baltimore the fellow had started *four* branches with the avowed purpose of "breaking up" his opponents (who were about all the respectable men here), and the last one is for sale now. On account of the losing game here in the past two years being kept up by one who was wealthy, the majority of the average good photographers have yet to maintain low prices, though most of them are doing better grades of work at higher prices, *and they with the high-priced studios are doing the business*, while the "original Cheap John," with the most frantic efforts at advertising, sending out men to sell club tickets and "coupons" at any price, life-size bromide pictures at \$5.00, etc., is playing a losing game; and with a \$50,000 building and equipment to match, is not doing the business of studios who have not \$2000 invested. From every city, almost, I hear similar views. Merit is gradually, but surely, resuming its place. While the former *highest* prices will probably not be obtained again for a long time, there is a growing healthy public sentiment visible for good work at fair prices. "Cheap" work is no longer a popular shibboleth. When I see the leading low-priced man *selling paper dress patterns and cologne* (?)



in his art store "to make dings lively," and the better men doing better all the time, with only their work as the advertisement, I think I am justified in taking the optimistic view. When I see the former using a lot of poorly paid boys and girls to do his work, and still not make it pay as well as the better men, who employ good assistants at fair salaries in every department, I see again the signs of some of "the good old times." But the best of all is the positive faith and knowledge that portrait photography has become a necessity in every family, will be practised as long as the sun shines, and in the very nature of things will be excelled in only by the best talent and brains, regardless of capital.

There has been more harm done by such articles as one that was published in the *Times* by Charles Wager Hull than that author would believe or would willingly be guilty of. He took the very untenable position that a large establishment, with a large capital and a large force (and, of course, a large rent), can work cheaper at a profit than the small establishments, and would finally swallow them up, similar to other manufacturing and jobbing enterprises. He is guilty of the absurdity of citing the large jobbing houses as examples. Now, if he is a practical portrait photographer, his experience ought to tell him first that \$2000 will start any good, competent photographer with an outfit to make the very best and largest work. Now such a man, with any business capacity at all, *if he is a good photographer*, can set right up next door even to the biggest Cheap John in existence, make better work at cheaper prices, and pay a better profit than the establishment conducted on the big factory plan, and, having the advantage of personally attending to his patrons and business, will get larger orders, and will surely build up a patronage in spite of the "big" man. That has been the experience of every man of ability who is sober and steady. Every man has personal friends, and fortunately in our profession *they seek the man*, not the establishment. Our profession or art can be made to yield a *personal patronage* and following the same as that of a dentist or physician, etc. It ap-

peals to human vanity to some extent, and the majority of people become attached to the style of a certain man's work. Photographers should foster and encourage this peculiarity, and let them not by any means put "Bragtown Photographic Company," or "Elite Humbug Studio" on their cards, but "John Smith, Photo. Artist," and Smith with a big S, too.

When Sarony first introduced that well known signature on his mounts, he did an inestimable service to the art, as well as he has done by his artistic genius. He pointed the way to the poorest photographer of ability to obtain a *personal renown for his work*, so that *the man* (not his establishment, which could be run by merely a capitalist) securely holds the patronage, and there is where the would-be monopolist of the "Cheap John" is forever checked.

This is not the talk of a theorist, but of one who has followed that very principle and established a business by personal following that was able to withstand for years the opposition of the worst "Cheap John" that ever raided the fraternity, and successfully maintain patronage at prices in most cases nearly double that of the cheap men. Gentlemen, the brighter days are surely coming again, as they have before, and when the profession for a time was degraded.

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### BROMIDE OF SILVER GELATINE EMULSION PROCESS.\*

BY WALTER E. WOODBURY.

(Concluded from page 249.)

35. Spots during the intensifying with mercurial salts.

*Reason A.*—Incomplete removal of the hypo from the film.

*Remedies.*—Sufficiently long fixing; complete removal of the hypo before and after treating with the intensifier. Spotted negatives are difficult to restore. According to Kuntzmüller, it is most successfully attempted with chloride of gold solution.

*Reason B.*—Gray veils occur usually only

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\* Translated for the PHILADELPHIA PHOTOGRAPHER from Pizzighelli's *Handbuch der Photographie*, Band I., 1886.

when the negative was already veiled to some extent after developing.

*Reason C.*—Spots of the form depicted appear when the washing between the quick-silver bath and the treatment next following with ammonia has not been sufficient.

*Remedies* to A and C are self-evident. A spotted negative cannot be restored.

36. Display of white stars on the fixed plates in drying.

*Reason.*—Imperfect washing out of the hypo.

*Remedy.*—Thorough washing.

37. An often darkening of the fixed negatives.

*Reasons.*—When in the silver intensifier the operator has omitted to dip the plate again into the hypo. You must endeavor to get the varnish off, and to clean the plates with cyanide of potassium. For this purpose employ

Chloride of Mercury . . . . .	2½ grs.
Soda . . . . .	2½ “
Cyanide of Potassium . . . . .	5 “
Water . . . . .	1000 c. cm.

The dried negatives must be left in this solution until the desired effect is attained, and then well washed. The same solution is also a good reducer for too dense negatives.

38. Brown spots arising in the copying.

*Reasons.*—The gelatine plates get a yellowish-brown tint when they are used unvarnished in copying, because the nitrate of silver of the albumen paper is absorbed in the film, and gradually becomes brown.

*Remedies.*—Silver spots cannot be removed from unvarnished plates without injury to the negative. They are best removed by dipping into a solution of

Cyanide of Potassium . . . . .	2 to 5 grs.
Alcohol . . . . .	500 c. cm.,

or by gently rubbing with the same solution. As soon as they have disappeared, wash first with alcohol and afterwards with water.

Negatives also which are protected only by a collodion film instead of with varnish, not unfrequently get silver spots. These, in such a case, are to be found in the collodion film, and can be washed out by alcohol or ether; afterwards varnish with negative varnish.

39. The plates appear milky after varnishing.

*Reason.*—This appearance shows itself when the gelatine plates have not been allowed to dry properly before varnishing.

*Remedy.*—The varnish must be removed, and the plates revarnished.

40. The varnished plates get bladders and net-like blisters.

*Reasons.*—Damp and water.

*Remedy.*—Remove varnish, and revarnish.

### QUESTIONS TO THE CRAFT.

IN order to diffuse information of value to many of our readers who are continually inquiring—those who have not the advantages of conventions, or even contact with other photographers, we propose the questions which follow to our more privileged readers, and ask a generous response to them, for publication, for the sake of the real good which such action will accomplish:

1. Are you making large portraits direct in the camera, *i. e.*, using a larger lens than 14 x 17, with large dry plates? If so, what is your method of lighting and manipulation, and your experience as to the quality of your results compared with enlargements from small negatives?
2. Do you obtain as satisfactory results, in portraiture, with very rapid plates, as you do with slower ones?
3. What is your most successful method of development of rapidly exposed plates?
4. Have you found an increase of business and profit with the increased facilities for making large work more expeditiously adopted by you?
5. What has been your experience, both in practical results and in the acceptance by the public, of bromide enlargements?
6. What with platinotype prints?
7. Do they increase the revenue from your stock of negatives?
8. Please detail some of your experiences in making pictures of children.
9. In printing dry-plate negatives wherein does your treatment of them vary from your practice with wet plates?
10. What variations do you make in your manipulations in cold weather from your practice in the mild seasons?

11. What are the prospects for the coming year?

EDWARD L. WILSON,  
853 Broadway, New York.

Before summing up on these questions we should be gratified and much helped in our work, if a few more of our earnest readers would send us answers to them. Who will do so next?

## EXHIBITING AND EXHIBITIONS.

BY H. P. ROBINSON.

I THINK all will agree with me that the chief event of the year to our Society is the Exhibition, and that it is the duty of every member to make it as perfect as possible, so that those who are interested and want to know what is new in the science, and true in the art of photography, may come here every October and judge for themselves. The outside public learns from our exhibitions the progress one of the three wonders of the nineteenth century is making; and the photographer, whether professional or amateur, acquires a knowledge of what his brethren are doing, and perhaps picks up new ideas, fresher inspiration, and intensified enthusiasm.

The time is now coming when wise photographers who look ahead should begin to think of what they shall do for the autumn shows, although I fear that too many are content to send a selection from the work done during the summer—work done without any special reference to exhibitions. In selecting your pictures, it is perhaps needless to tell you to send of your best, but it is not given to every man to know what is his best. The good and the bad, like the often quoted sublime and ridiculous, are sometimes so nearly related that it is difficult to class them separately. It is our occupation to pursue shadows, and photographers, especially when judging their own works, seem inclined to "listen with credulity to the whispers of fancy, and pursue with eagerness the phantoms of hope." The quality of a large part of the work now contributed is much higher than it was ten, or even five years ago; so that anything sent to future exhibitions must

be something more than good ordinary photography, if it is expected to claim more than a passing glance from the visitors.

It is a great mistake to send too many pictures, it is giving points against yourself. By doing so you run serious risk of breaking the eleventh commandment, and being found out. I have often seen and admired two or three good pictures, but that admiration has dwindled down to something like disgust when I have come to a lot of inferior work by the same hand, plainly suggesting that the good pictures were flukes, or happy accidents, and that the photographer could not distinguish good work from bad. It is quite astonishing to me how so much bad work, even now, finds its way to exhibitions. Photographers who would soon see the mote in the eye of another man's photograph cannot see that there is anything the matter with their own. It is human nature, I suppose, to fancy that our own geese are swans, and it naturally follows that

"Like Katerfelto, with his hair on end  
At his own wonders,"

we feel sure the public will be delighted with our apprentice efforts, which to us look so like the work of a master.

There were many things sent to the last exhibition—I saw them amongst the rejected, and, I may add, also on the walls—which showed a very imperfect knowledge of what ought to be offered for exhibition. Yet, I must confess that curious inconsistencies sometimes occur. The stone that the mason has refused has been known to become the corner stone of the building. I once saw a picture placed very high over a door, evidently taken at random from among the rejected to fill a space, which afterward took a medal at another exhibition. I have also seen the reverse of this. I have known a picture, which took medals in several of the most important competitions, entirely rejected by the judges at a village exhibition.

It is very difficult to put any limit to the number of pictures to be sent by each exhibitor. I don't mean in the interests of the exhibition so much as of the exhibitor himself. It is possible to get weary even

of great excellence. I take an illustration from the last exhibition. There were five large frames sent to show what could be done by a particular maker's camera, and which, therefore, should have been placed among the processes. Each frame contained a large number of small pictures, many of them quite exquisite little gems, all of them good, but so numerous that the eye tired. I was one of the Judges, and, therefore, sworn by our inexorable President to study every picture, and I did not feel kindly to the hangers for admitting so many of these advertisements, beautiful though they were, yet the hangers had not hung all of the frames of the same kind sent in by this one exhibitor.

On the frames the exhibition depends for its general effect only second to the pictures they enclose. The harmonious effect of our last Exhibition was seriously marred by the inappropriateness of many of the frames, and more especially by those of two conspicuous exhibitors, to which I do not think there would be any impropriety in alluding. There were some foreign pictures, so fine in themselves that they well deserved the place of honor they got; but they were shown in mounts so glaring and vulgar, that they seemed almost to defy the hangers to accept them. Opposite to these foreign productions, also honorably placed in a centre, which the pictures well deserved, were some magnificent Yachting Scenes, in a frame that made an eyesore to that side of the room. These prints were mounted in cushion-shaped rims, set in red flock paper, a most disastrous combination. Metal rims always look cheap and common, and are only fit for the sixpenny positives done by our nomadic brethren on the beach; the cushion is the most inartistic of all forms; and nothing could be more damaging to the color of a silver print than a red flock; it is even one degree worse than aniline dyed plush. Both sets of pictures reached the perfection of their kind, and it was vexing to see artists, who could do such good work, do themselves so much injustice by their way of showing it.

It is very difficult to give any definite directions about framing. Taste is so wide, that it will not be dictated to; but there

are some things so positively injurious to the general effect, that they should be vetoed. The only thing at present objected to in the Prospectus for the Exhibition issued by the Council is the Oxford frame. To this might be added all oval frames, black frames, white frames (we had some white frames in the last Exhibition), and all glaring and violent colored mounts; the flocks are especially detestable, and there are some cold, blue-gray mounts, much affected by some exhibitors, which are utterly destructive of harmony. I should be sorry to object to novelty in framing, but I would strongly object to dangerous eccentricity.

It is easy to object, not so easy to suggest; but I will try. In an ideally perfect exhibition all the pictures would be framed in gold, or something that would look sufficiently like it. This is the rule at the Royal Academy, and at nearly all the principal Exhibitions of Paintings; no card mounts of any kind are allowed inside of frames, unless they are gilt. We cannot be so strict here; but we may ask our exhibitors to strive for something like conformity. English gilt frames are no doubt the best when cost is no object; but for purposes of exhibition, I am willing to admit that the German moulding, which has so much improved of late years, is good enough. I would also admit to Photographic Exhibitions light oak or other wood frames, or these frames partially gilt, so as to harmonize with the gilt frames; but I would abolish anything that would make a blot on the walls. I should also like to see the mats, or mounts, inside the frames gilt, or of some delicate warm tint. Crude white does mischief; so does cold gray. There is no necessity for these mounts to be so wide as they sometimes are made. It is not fair to take up the space in an exhibition where space is limited by a display of plain paper.

The above remarks on framing are said on behalf of the Exhibition; it will be only just to say a word to the exhibitors on their own behalf. It is useless to deny that considerable damage was done to frames last year which ought not to have been done, and it is hoped that the cause has, to some extent, been discovered, and that it will not occur again; but exhibitors must not ex-

pect to have their frames back from an exhibition in all their pristine freshness. A good deal of damage is done at every exhibition, from the Royal Academy downward. It has been calculated, I do not know with what truth, that the frames that go into the Academy each year come out again with about £2000 of their value taken off them. A few years ago I sent an oil painting in a new frame to a Provincial Exhibition of Paintings. It was returned to me before the opening of the exhibition, because they had so damaged the frame and scratched the picture, that it was not fit to exhibit. My advice, therefore, is—Don't go to too much expense in framing your pictures, but let them be framed decently, and so that they will agree with others.

The back of your frames should demand as much attention as the front. You should be very careful that no nails project. When they arrive it is impossible to avoid stacking the frames together, and if nails project it is as much their nature to scratch as it is that of an angry cat, and damage must happen.

Never send two pictures of the same subject, unless the second picture illustrates a process, and is intended to be hung in the process corner. Nobody wants to see two pictures which differ only in size. However much you may appreciate your picture you need not send a lot of them. I mention this because I have seen as many as three prints of the same subject hanging in this room at the same time, and in this particular instance they did not vary even in size.

And now I am going to say a few words on that very tender subject—hanging.

The first duty of those who provide an exhibition to which the public are invited, is that it should be sufficiently worth seeing to repay the latter for the trouble and expense of going to see it. To do this, what is most worth seeing must be hung in the places where it can be best seen, and the whole show must have a good general effect. The second thought—not the first—must be for the exhibitors, and how to do them justice, if possible, and to do as little injustice as can be helped. That there must be some mistake is inevitable, and

always will be until this becomes a perfect world, when perhaps photography itself will be superseded by something better. Not only must flagrant injustice be avoided, but too strict justice also. A producer of a muddy, out of focus, slate-colored enlargement, could scarcely but feel, when he sees his picture on the line, that he has not only been well hung—but gibbeted.

The difficulties in arranging the pictures increase year by year as new processes are added to our stock. There was a time when the only considerations that arose were, which were the best pictures, and how were they to be fitted together. No regard had to be paid to their color, as they were all printed alike. Hangers now have to be always on the lookout that prints of different kinds do not get so near together as to murder each other. I have seen a vulgar, large, black and white head, printed on pink albumenized paper, utterly destroy a group of most delicately beautiful platino-type prints; and what could be worse to the general effect of a room, as well as their immediate surroundings, than the cold, faded, slate-gray of bromide-prints, especially when of large size? It is getting increasingly difficult to know what to do with such pictures, short of rejecting them altogether, or spoiling the exhibition. It is possible that in time these prints may be improved in color, then these remarks will not apply.

I think that hangers and judges insist, sometimes, too much on anonymity, and perhaps I may add, impartiality, although it requires all my temerity to say this. To begin with, it is impossible to keep up more than the pretence of the anonymous. An expert does not fail to recognize the work of well-known exhibitors, and it is scarcely fair that the others should not be known also. It is absolutely necessary, if our exhibitions are to be representative, that the names of the exhibitors should be known to the hangers. There can be little doubt that an exhibition depends, apart from its business management, on its general effect and the beauty of the pictures exhibited, but there should be room found for a few pictures which have nothing pictorial nor any novelty of invention to recommend

them, and their interest should depend solely on the name of the producer. I will give an instance.

When a man writes or talks a good deal which appears to be very sensible about photography, when he apparently spends a good part of his life in trying every plate and developer that is recommended with a series of his own modifications to each of them, when he tests everything that he uses even to destruction, and is wildly anxious that his work should be permanent and never die, then it is interesting to see that man's work, that we may be witness to what use he puts his knowledge. In such a case, which is quite suppositious, it is not the beauty of the work which should be considered, but the interest is founded on what sort of work that man produces. An absolutely impartial and just hanger would perhaps turn these interesting works out. But an impartial man is a machine.

Here is another case of impartiality which I commend. The works of members, always providing they are good enough and not excessive in number, should be preferred to the exhibits of those who only occasionally make use of the Society's Exhibition at the cost of a few shillings. Of course, there must be exceptions to this rule as to all rules. It may happen that an outsider sends in a supremely fine work—then all ideas of rights of the members should be thrown to the winds, and the fine work should have the best place.

Yet another instance of commendable partiality. If an old exhibitor (one who has done much for photography and photographers) sent in presentable work, I confess that I should not consider the work before me, but I should certainly think of the benefits that man had conferred on the art; and, if it could be done without injustice to others, I should "be to his faults a little blind," and give his work a rather better place than perhaps it intrinsically deserved. This is another reason for knowing who's who.

Every year there are some complaints about the hanging, and it would be astonishing if in a Society of nearly 500 members a few grumblers could not be found; and sometimes, if we could only

forget that no hangers are perfect, they have just cause. But the members have it in their own hands. I have not the authority of the Council for saying so, but I have no doubt that that body would welcome any member of the Society, who has any aptitude for the office, who would volunteer his help in the selection and hanging—and in sharing the blame. I mention blame only, because there is never any real praise for hangers, however well they may do their work.

I hear it has been suggested that a real cure for all our difficulties would be found in a Committee of twenty-five to manage the selection and hanging. This appears to me to be a youthful suggestion, born of inexperience. Two Kings of Brentford might be well enough, but I cannot imagine twenty-five of them smelling at the same rose. It would be as easy to ask for five-and-twenty volunteers as to call spirits from the vasty deep, and as effective. It should be quite understood that the duties of those who undertake to arrange the Exhibition do not consist in walking in and out of the room two or three times a day, and finding fault, and interfering with the real workers. Five minutes of inexperienced advice is scarcely of any real assistance to those who have done the work for years. What is wanted in a hanger is one who can afford to give six or eight hours a day for several days, and at the end to lengthen his days by stealing a few hours from the night.

To conclude, I should wish to impress on you three things:

To produce every year a few pictures especially for exhibition.

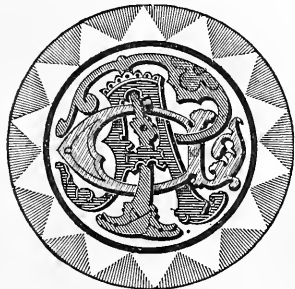
To send only a few of your choicest works.

To frame them reasonably, so that they may do no mischief to their neighbors or themselves.

Finally, when you find you have not got the best place on the walls, attribute the misfortune to fate, your luck, even want of quality in the pictures—anything rather than to the want of consideration or neglect of those hard-working and much-abused members, the hangers; and, if you should find yourself rejected altogether,

comfort yourself by thinking that it was all for the best.

### PERTAINING TO THE



To exhibitors, and all interested in the Exhibition at Chicago, the paper of Mr. Robinson will prove very timely. There is no one more experienced than he, as exhibitor, juror, and medal-winner, to speak not of his abilities as an artist, writer, and teacher in art.

The four "To's," at the close of Mr. Robinson's paper, are worth a great deal of careful attention, especially.

The "Finally," does not hurt us Americans very much, since, as will be seen by the engraving on page 304, a building is secured large enough to give a good place to all.

Two more offers of prizes are added to the list this month, as follows:

#### ANTHONY'S \$100 BROMIDE PAPER PRIZE.

A cash prize of \$100 will be given to the best collection of untouched enlargements, consisting of not less than three pictures, made upon Anthony's Reliable Bromide Paper, at the coming Convention of the Photographers' Association of America. Each picture to have a private mark of the photographer, and a duplicate mark to be sent to us for the use of the judges who are to award the prize, and the name of the photographer to be given us, so that we can advise the judges after the award is made to whom it belongs.

Those competing for this prize will please communicate with us prior to the 1st day of August, 1887, giving us their mark and name.

The bromide paper which we are now offering to the public we consider equally as good, if not better, than any that has ever been made. It is manufactured under the patent of T. C. Roche, dated May 3, 1881.

After the Convention, all competing exhibitors for this prize will be presented with one dozen sheets of the bromide paper, 20 x 24.

The judges will be three members of the Photographers' Association of America.

E. & H. T. ANTHONY & Co.

#### THE BECK LENS PRIZE.

In order to add our mite to the attractions and usefulness of the coming meeting of the Photographers' Association of America at Chicago, we have determined to offer the following prizes for competition thereat:

*First.*—For the best examples of portraiture, from cabinets to life-sized heads, made with Beck's "Autograph" lenses (of any size not smaller than No. 6), one No. 7 "Autograph" lens, the cash value of which is \$100.

*Second.*—For the best work, other than portraiture, such as architecture, landscapes, interiors, etc., one No. 5 "Autograph" lens of the cash value of \$60.

These lenses will be made by the Messrs. Beck especially for this occasion. They will be appropriately engraved, and will be exhibited during the Convention.

W. H. WALMSLEY & Co.,

Photographic Stock Merchants, Philadelphia,  
Sole American Agents for Beck's Lenses.

These two splendid offers reflect great credit upon the well-known generous houses making them, and carry with them the assurance that every thing concerning them will be conducted in the fairest way.

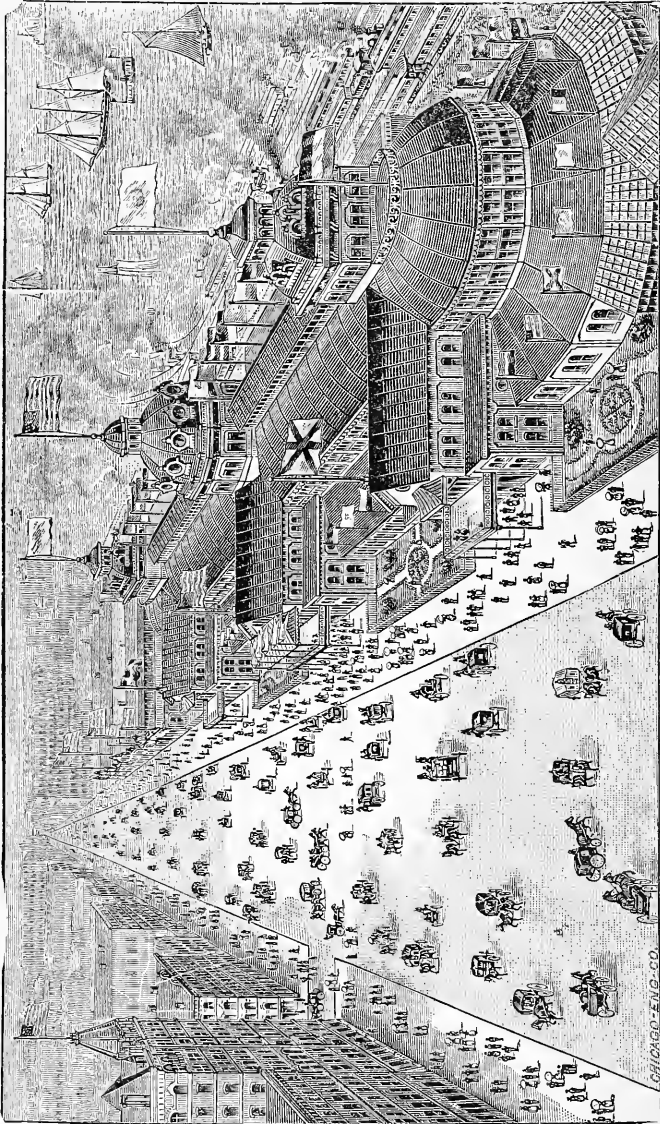
There will be a premium offered for jurymen if this prize-offer matter increases.

TWICE before the National Exhibitions of photographers have been held in the Exposition Building at Chicago. Once under the old N. P. A., when the "second Chicago fire" occurred, and again when the P. A. of A. was born.

The cut of the building below will refresh the memories of the old attendants, and ex-

cite the interest of those who hope to go in August for their first experience there.

last Convention, on exhibition in the Stock Dealers' Department.



The Chicago Exposition Building, where the next P. A. of A. Exhibition will be held.

*Rules and Regulations for Exhibitors in Dealers' and Manufacturers' Department.*

At a meeting of the Executive, held in Chicago in January last, it was

*Resolved,* That one silver medal be awarded for the best improvement in photographic apparatus or accessories produced since the

1. Every one wishing to exhibit or do business in this department must be a member of the Photographers' Association of America, and have not less than one hundred and sixty-five feet of space.

2. No one can sublet space under any circumstance.

3. Floor and wall space will be charged



at the rate of twelve and a half cents per foot.

4. All bills for space must be paid on or before the 9th of August.

5. It is distinctly understood that any one applying for space and not occupying the same, will bind themselves to pay for the same.

6. All freight and express bills must be prepaid.

7. The Art and Stock Dealers' Department will be closed each day from 9 A. M. until noon, to secure a full attendance in the auditorium.

8. No signs will be allowed in this department larger than three feet in any dimensions.

9. Any one not complying with the above rules will not be allowed in the Exhibition.

10. All applications for space should be made as soon as possible, and not later than July 12th, to C. GENTILE, Chicago, Ill., Local Secretary P. A. of A.

The Committee on Medals is now examining and discussing the designs for the new medals.

The "space" diagram is being prepared. The photographic publications are to be—

WE hear of considerable opposition to one or two of the officers of the P. A. of A. It is believed, however, that all intelligent and wide-minded photographers will bury all private animosities, and take hold for the general good. Personal dislikes and prejudices should not be allowed to influence any one to any act that will damage the success of the whole grand effort. One single officer cannot destroy all the good done by the many. The appointments made by the Executive are doubtless made after careful consideration, and for their sake should be accepted, respected, and the best made of them. We hope reason and sound sense will triumph, and that the honor of our lovely art will be furthered and upheld, even though all Chicago dies for it.

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### THE HENRY DRAPER MEMORIAL.

THE first annual report of the photographic study of stellar spectrum conducted

at the Harvard College Observatory, has been sent us by Prof. Edward C. Pickering directing astronomer of the observatory. We make the following excerpts from it:

Dr. Henry Draper, in 1872, was the first to photograph the lines of a stellar spectrum. His investigation, pursued for many years with great skill and ingenuity, was most unfortunately interrupted, in 1882, by his death. The recent advances in dry-plate photography have vastly increased our powers of dealing with this subject. Early in 1886, accordingly, Mrs. Draper made a liberal provision for carrying on this investigation at the Harvard College Observatory, as a memorial to her husband. The results attained are described below, and show that an opportunity is open for a very important and extensive investigation in this branch of astronomical physics. Mrs. Draper has accordingly decided greatly to extend the original plan of work, and to have it conducted on a scale suited to its importance. The attempt will be made to include all portions of the subject, so that the final results shall form a complete discussion of the constitution and conditions of the stars, as revealed by their spectra, so far as present scientific methods permit. It is hoped that a greater advance will thus be made than if the subject was divided among several institutions, or than if a broader range of astronomical study was attempted. It is expected that a station to be established in the Southern Hemisphere will permit the work to be extended so that a similar method of study may be applied to stars in all parts of the sky. The investigations already undertaken, include a catalogue of the spectra of all stars north of 24° of the sixth magnitude and brighter, a more extensive catalogue of spectra of stars brighter than the eighth magnitude, and a detailed study of the spectra of the bright stars. This last will include a classification of the spectra, a determination of the wave lengths of the lines, a comparison with terrestrial spectra, and an application of the results to the measurement of the approach and recession of the stars. A special photographic investigation will also be undertaken of the spectra of the banded stars, and of the ends of the spectra of the bright stars. The in-

struments employed are an 8-inch Voigtlander photographic lens reground by Alvan Clark and Sons, and Dr. Draper's 11-inch photographic lens, for which Mrs. Draper has provided a new mounting and observatory. The 15-inch refractor belonging to the Harvard College Observatory has also been employed in various experiments with a slit spectroscope, and is again being used as described below. Mrs. Draper has decided to send to Cambridge a 28-inch reflector and its mounting, and a 15-inch mirror, which is one of the most perfect reflectors constructed by Dr. Draper, and with which his photograph of the moon was taken. The first two instruments mentioned above have been kept at work during the first part of every clear night for several months. It is now intended that at least three telescopes shall be used during the whole night, until the work is interrupted by daylight.

The spectra have been produced by placing in front of the telescope a large prism, thus returning to the method originally employed by Fraunhofer in the first study of stellar spectra. Four  $15^\circ$  prisms have been constructed, the three largest having clear aperture of nearly eleven inches, and the fourth being somewhat smaller. The entire weight of these prisms exceeds a hundred pounds, and they fill a brass cubical box a foot on each side. The spectrum of a star formed by this apparatus is extremely narrow when the telescope is driven by clockwork in the usual way. A motion is accordingly given to the telescope slightly differing from that of the earth by means of a secondary clock controlling it electrically. The spectrum is thus spread into a band, having a width proportional to the time of exposure and to the rate of the controlling clock.

This band is generally not uniformly dense. It exhibits lines perpendicular to the refracting edge of the prism, such as are produced in the field of an ordinary spectroscope by particles of dust upon the slit. In the present case, these lines may be due to variations in the transparency of the air during the time of exposure, or to instrumental causes, such as irregular running of the driving clock, or slight changes

in the motion of the telescope, resulting from the manner in which its polar axis is supported. These instrumental defects may be too small to be detected in ordinary micrometric or photographic observations, and still sufficient to affect the photographs just described.

A method of enlargement has been tried which gives very satisfactory results, and removes the lines above mentioned as defects in the negatives. A cylindrical lens is placed close to the enlarging lens, with its axis parallel to the length of the spectrum. In the apparatus actually employed, the length of the spectrum, and with it the dispersion, is increased five times, while the breadth is made in all cases about four inches. The advantage of this arrangement is, that it greatly reduces the difficulty arising from the feeble light of the star. Until very lately, the spectra in the original negatives were made very narrow, since otherwise the intensity of the starlight would have been insufficient to produce the proper decomposition of the silver particles. The enlargement being made by daylight, the vast amount of energy then available is controlled by the original negative, the action of which may be compared to that of a telegraphic relay. The copies, therefore, represent many hundred times the original energy received from the stars. If care is not taken, the dust and irregularities of the film will give trouble, each foreign particle appearing as a fine spectral line.

The most rapid plates are needed in this work, other considerations being generally of less importance. Accordingly, the Allen & Rowell extra quick plates have been used until recently. It was found, however, that they were surpassed by the Seed Plates No. 21, which were accordingly substituted for them early in December. Recognizing the importance of supplying this demand for the most sensitive plates possible, the Seed Company have recently succeeded in making still more sensitive plates, which we are now using. The limit does not seem to be reached even yet. Plates could easily be handled if the sensitiveness were increased tenfold. A vast increase in the results may be anticipated with each improvement of

the plates in this respect. Apparatus for testing plates, which is believed to be much more accurate than that ordinarily employed, is in course of preparation. It is expected that a very precise determination will be made of the rapidity of the plates employed. Makers of very rapid plates are invited to send specimens for trial.

The photographic work has been done by Mr. W. P. Gerrish, who has also rendered important assistance in other parts of the investigation. He has shown great skill in various experiments which have been tried, and in the use of various novel and delicate instruments. Many of the experimental difficulties could not have been overcome but for the untiring skill and perseverance of Mr. George B. Clark, of the firm of Alvan Clark & Sons, by whom all the large instruments have been constructed.

From the above statement it will be seen that photographic apparatus has been furnished on a scale unequalled elsewhere. But what is more important, Mrs. Draper has not only provided the means for keeping these instruments actively employed, several of them during the whole of every clear night, but also of reducing the results by a considerable force of computers, and of publishing them in a suitable form. A field of work of great extent and promise is open, and there seems to be an opportunity to erect to the name of Dr. Henry Draper a memorial such as heretofore no astronomer has received. One cannot but hope that such an example may be imitated in other departments of astronomy, and that hereafter other names may be commemorated, not by a needless duplication of unsupported observatories, but by the more lasting monuments of useful work accomplished.

#### DIRECTIONS FOR USING ANTHONY'S PATENT RELIABLE BROMIDE PAPER FOR CONTACT PRINTING AND ENLARGEMENT.

Since this new paper has come into market, the demands for "formulæ" warrant us in giving place to what follows, for the common good.

#### *Developer.*

##### *A.*

Oxalate Potash . . . . 8 ounces.  
Hot Water . . . . 24 fl. ounces.

Make acid with acetic acid No. 8.

Test with blue litmus paper.

##### *B.*

Anthony's Pure Iron . . . 8 ounces.  
Hot Water . . . . 16 fl. ounces.  
Sulphuric Acid, C. P. . . 10 minims.

##### *C.*

Bromide Potassium . . . 1 ounce.  
Water . . . . 32 fl. ounces.

NOTE.—The dry measure above quoted is based on 437 grains to the ounce. Keep these solutions separate; they must be mixed only for immediate use.

#### *To Develop.*

A . . . . . 3 ounces.  
B . . . . .  $\frac{1}{2}$  ounce.  
C . . . . . 10 minims.

NOTE.—This solution should present a brilliant ruby color after combination. Solutions A and B should be allowed to settle clear before using, and a developer should never be placed on a print while warm. Immerse the exposed sheet in water in a tray or dish of suitable size; after thorough saturation, make sure that you have the paper film side up, and then drain the water off slowly, allowing the sheet to sink gradually into close contact with the bottom of the tray. This will prevent ridges being formed by bubbles of air between the dish and print, and is very important. With an even sweep of the graduate flow on the developer, as with a plate. If the exposure is correct, the image should appear in about the same time as with a well exposed plate. Continue until the shadows are sufficiently strong and high lights present the expected detail; at this stage pour off the developer quickly and as completely as possible, and without rinsing flood the print with the

#### *Clearing Solution.*

Acetic Acid . . . . 1 drachm.  
Water . . . . 1 quart.

This should be repeatedly applied, say three or four times at least, in sufficient quantity to cover the print, allowing half a minute between each application to admit of the thorough action of the acid. In the case of large prints a final ten minutes' soaking in a fresh batch of the clearing solution is strongly advised.

After a careful wash of not less than three minutes in running water, or three changes during the same time if water supply is short, transfer to the

#### *Fixing Bath.*

Hypo . . . . .	8 ounces.
Water . . . . .	40 ounces.

Be sure and submerge the print in the fixing solution, and see that there are no air-bubbles to prevent fixation. Fix for ten minutes, after which remove directly to a dish containing

Common Salt . . . . .	8 ounces.
Water . . . . .	64 fl. ounces.

The time the print remains in the salt and water is not material. After a lapse of not less than three minutes, remove and wash in pure water. Let the washing be as thorough as your conveniences will allow.

#### *Mounting.*

*First.*—For large work provide a smooth table not less than the size of the largest print you intend to make, and on this lay a piece of rubber cloth sufficient to cover and overlap.

*Second.*—Next get a good sheet of plate or French glass of proper size. If glass cannot be obtained of suitable size, a smooth board covered with rubber cloth will answer perfectly.

*Third.*—The board should be well stayed at the back so as to prevent warping, as that would be very troublesome and unsatisfactory.

*Fourth.*—A flat bristle paste brush of not less than four inches wide; five inches is better.

*Fifth.*—Make your paste of good starch; it will be found to stick better if the boiling is stopped just before it becomes translucent.

*Sixth.*—A ten-inch rubber squeegee.

Arrange the piece of plate glass or board on a slight incline, with the lower end toward your print washer. Raise a print carefully, and, laying it face down on the glass, with the squeegee remove all surplus water. Paste smoothly from end to end, and crosswise, and, if a stretcher is used, paste the muslin also. Raise the print and centre it over the mount; bring the two in contact squarely in the usual manner, then turn the mounted picture face down on the rubber covered table, and with a wad of cotton flannel rub down from the back, taking care to avoid touching the sides of the frame, as that would make a paste line that it would be difficult to get rid of afterward. After rubbing from the back, raise one end of the rubber cloth, and with the stretcher; grasp the stretcher and drop the cloth, which will fall easily from the surface of the print. With the palm of the hand dampened rub the air-bubbles toward the edges, and when smooth hang up to dry. If a card-board mount is used follow the above directions, except in pasting the mount; and instead of laying the mounted print face down to rub, put the print on the table face up and lay the rubber cloth over it. A few strong sweeps of the squeegee will assure perfectly smooth contact. Prints may be dried and afterward wet and mounted when convenient.

The treatment of small prints is exactly similar on a reduced scale.

#### *Contact Printing.*

Adjust a negative in a printing frame as for ordinary silver printing. In a room lighted with a safe yellow light open the package, and, taking a sheet, lay it carefully in contact with the film side to the negative; pad and clamp down the back of the printing frame. Exposure may then be made to the flame of a kerosene lamp or a gas burner. The time must be determined by the intensity of the negative and the brilliancy of the illumination. With a negative of the best quality and a light of the ordinary house-burner type, the exposure should average about thirty to forty seconds four feet from the burner. Reducing the distance decreases the time, but it is liable to increase contrast. Daylight may

also be used, but, both on account of its variable character and the sensitiveness of the paper, it is not recommended, as it is unmanageable except in the hands of an expert.

Vignetting can be easily accomplished, the only thing to be determined being the proper aperture of vignette to suit the distance from the source of light, after which once fixed always fixed.

#### *Proof from Wet Negatives.*

With this paper a proof may be shown to a sitter within ten minutes after the negative is developed. After development, fix and wash the negative well under the tap for about three minutes; wet a piece of the reliable paper and squeegee in contact with the negative, a piece of paste-board held against the paper at the back will protect from light—expose and develop as directed. Proofs or prints not intended for mounting should be dried by squeegeeing face down on a piece of polished rubber. When dry they peel off with a beautiful enamel.

#### *Burnishing.*

If you wish to burnish contact prints don't attempt it until they are perfectly dry, and use dry castile soap as a lubricator. Only the heavy and light smooth papers should be burnished, the grained paper cannot be so treated.

#### *Enamelling.*

Rub the surface of a piece of clean plate glass with a tuft of cotton-wool and French chalk until it has been evenly treated all over; then carefully remove all trace of dust, and coat with a plain collodion composed of soluble cotton, 50 grains; alcohol, 5 ounces; ether, 5 ounces. Allow this to set, and immerse in a dish of clean water till all the oily lines disappear. The print may then be placed in the same dish film down and brought into contact with the collodionized plate under water; this prevents the possibility of air-bubbles. Carefully remove the glass from the water, and with a squeegee press out all moisture as completely as possible. When thoroughly dry,

rule with the point of a knife and a straight edge through the paper to the glass; on lifting one edge with a gentle pull the whole will come off with a magnificent enamel, equal to the finest carbon print.

#### *Reasons Why.*

The developer must be acid, if not the prints will be foggy and mealy. A clearing solution must be used, because oxalate of iron cannot be washed from paper unless the washing water is acid, and if it is not so washed you will have yellow prints. Please remember this, as it is very important. Don't increase the proportion of acid. It isn't necessary. *Quantum suff.*

A salt solution should always be used as a preventive to blisters: "Prevention is better than cure."

Your hands and dishes, etc., must be clean anyhow if you want to do good work of any kind, but when you begin this process if you have any job lot of untidy habits left, "relegate them to the limbo of obscurity." At any rate, never touch a piece of paper either to expose or develop while there is the slightest suspicion of hypo on your hands. Avoid handling dry pyro or the compounding of a pyro developer in the room where you expect to make prints. If you don't you will see stars, but they won't be "beautiful stars" in your opinion.

Don't use your hypo for more than two day's prints, supposing you make at least ten 30-inch prints per day. Four gallons of the solution of the strength mentioned here should fix twenty-four 30 x 40 prints and no more. The cost isn't more than 25 cents to change, and the old solution is full of silver, so there is no loss, and clear white prints are assured.

The sizes are larger than anything that has ever before been attempted. Anthony's Patent Reliable Paper is coated by the most perfect and the largest machinery ever designed for the purpose, and is warranted uniform in quality and capable of producing the most beautiful results photographically.

The grades are H. G., heavy grained; H. S., heavy smooth; L. S., light smooth, all at one price.

### THE WORLD'S PHOTOGRAPHY FOCUSSED.

Now that there is to be a chart of the heavens made by photography, will everybody please try to spell the name of our good American veteran astronomer, L. M. Rutherford, Esq., with two of u and none of o, as above? It may make all the difference in the world to him when he begins his celestial work.

IN opening the congress of astronomers at Paris, M. Flourens said, "thanks to the marvellous applications of photography the work before the congress would be rich in unforeseen results. The unknown stars that would be revealed by the application of photography, would, he said, be innumerable and it would be an eternal glory for the members of the congress to have inaugurated so grand an enterprise; the opening day would be one of note in the annals of science."

WE have given our readers foretastes of what may be expected in celestial work, thanks to Prof. Smyth.

THE Florentine Exhibition promises to be a wonderful success.

THE Czar of Russia has turned his back upon photography and taken up literature. It often works that way—but he will return.

THE Air Brush caused much wonder and excitement when exhibited at the Birkenhead, Eng., Photographic Association recently. It is a wonder.

EUROPEAN travellers are cautioned against photographing in France.

A CHRONOLOGICAL series of photographs of the paintings of Raphael is to be made by a Liverpool photographer; a capital scheme.

WHO owns the negative? This old question is being discussed again in the Old Countries. Who owns the brush and colors of the painter?

MR. J. B. OBERNETTER, the famed Munich photographer is dead, at the early age of forty-seven. He was one of the

most industrious and ingenious photographers the world ever knew. He probably stood next to Walter B. Woodbury. Several years ago he embellished our magazine with his photo-mechanical prints and gave a splendid "dry" process. His last success was in photo-engraving. We trust that his secret is not buried with him. Alas! that he should be called away so early. His death is a great calamity.

SKY and cloud opportunities abound now. Some high point is best to snap them from.

A CHINESE photographer is said to have found out how to photograph in colors. Well?

MISS SCIDMORE, of Yokohama, Japan, is an American literary lady who writes: "I rarely go out into the streets without my camera. The picture days are never twice the same here."

UNDER the Presidency of Mr. B. V. Hahn, the second general assembly of the Dresden Albumen Paper Manufacturers' Corporation took place on the 17th of February, at 11 A. M. in the Stock Exchange. The assembly comprised twelve stockholders with 843 shares and as many votes. First the previous members of the Inspection Committee were reelected by acclamation, the number of this committee having been settled at eight, then the business report, and balance of accounts, as well as the conferring of discharges and the proposed appropriation of the net gain were unanimously approved. The dividends of 7 per cent. on capital stock Lit. A, and those of 5 per cent. upon the capital stock Lit. B are referred for payment to Mr. Rocks, successor, while the raffled shares are payable from March 17th.

The assembly testified by a rising vote, their thanks to Director Silomon for the great ability and care with which the enterprise was conducted. Mr. G. Gennert, is American agent.—*Archiv.*

CHELTHENHAM PHOTOGRAPHIC SOCIETY.—The monthly meeting was held on April 14th, when a demonstration was given by C. Joyner of the use of the magnesium light in portraiture. The apparatus, of Mr.

Joyner's own devising, consisted of a lantern constructed as follows: A wooden box, having at top and back glass reflectors, and in front a sloping pane of ground-glass, was suspended from the ceiling. On the floor of the box was a horizontal gas jet connected by rubber tubing with the gas supply. Just in front of the nipple was a small wire ring which held the lower end of the doubled magnesium ribbon, its upper end being attached to a hook vertically over the ring. The gas flame during the focusing was just kept alight, and when turned up, ignited the magnesium wire. To supplement the illumination, two other lengths of wire were burned in front of a tin reflector placed at the side at a little in front of the sitter. The duration of the light was about six seconds, and a very fairly exposed group of eight members was obtained with a rapid symmetrical lens, full aperture. An excellent single portrait was taken in one second with the lens stopped down. The demonstration showed clearly the great advantage that may be derived from this light, without any expensive apparatus or complicated details.

**BIRKENHEAD PHOTOGRAPHIC ASSOCIATION.**—The President soon had the members thoroughly *en rapport* by the amusing narration of an adventure which befel an old gentleman a few days previously photographing some shipping on the Mersey. He had unwittingly fixed up his camera immediately in front of the electric cannon which supplies Liverpool with Greenwich time at one o'clock. While standing with his head under the cloth diligently focussing, bang! went the gun, the old gentleman and camera making an ignominious exit over the dock wall into the river, and being still more ignominiously fished out on the end of a boat hook, his first and his last experience, he says, with the "wet process."

The American air brush excited much interest on account of its novelty. It was ably demonstrated by G. E. Bell, the agent here for the American Company. By its aid in some five minutes he produced a life-sized drawing of a girl's head, which illustrated the beautiful gradations and depth of tone it is capable of rendering. A portfolio

of finished drawings by him were very fine. To illustrate its usefulness in bromide and similar work Mr. Lange showed two platinum-type enlargements of a head, the one finished with the air brush being immeasurably superior to the other. He said it had been found most useful in producing sky effects in paper negatives.

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### SOCIETY GOSSIP.

BRIDGEPORT, CONN., April 28, 1887.

Dear Sir: At last Bridgeport has fallen into line, and our organization is christened the "Bridgeport Camera Association." We begin with good, strong *vitals*, and hope to make a permanent institution. We organized on Tuesday evening, the 26th inst., with about fifteen members, and elected the following officers:

President, Dr. C. C. Godfrey; Vice-President, G. K. Birdseye; Secretary, A. C. Campbell; Treasurer, Geo. H. Johnson.

Executive Committee, Dr. C. C. Godfrey, G. K. Birdseye, S. S. Sanford, Charles Armstrong, and W. H. Lamson.

Regular meetings to be held on the 2d and 4th Tuesday of each month. Our object is "the cultivation and promotion of the art and science of photography," etc.

We are to open our rooms at an early date, and will have a well-equipped dark room for use of our members.

So much for our Association, and now I have a question to propound which admits of dispute. What constitutes an amateur in the photograph societies? Does a man forfeit his right to join all photograph clubs (amateurs) when he accepts money for his work? I understand that the New York societies are very strict on this point, but are *all* clubs the same? Is it not admissible for a club to define the word for itself?

You have probably heard this question discussed many times, and discussed it yourself many more, so I would like to hear if the question has two sides.

Yours truly,

A. C. CAMPBELL,

Secretary, Bridgeport Camera Association.

P. S.—I have pleasure in acknowledging myself a pupil of L. Farini, whose love of the art makes him very generous and help-

ful to those who strive to learn its mysteries. Will some of your readers give us their views on the query put?

*Editor of PHILADELPHIA PHOTOGRAPHER.*

DEAR SIR: I desire to announce, through the columns of your paper, that the old amateur photograph club, the "Argents," has been revived with an increased membership and every prospect of renewed activity.

Composed of some of the most prominent amateur photographers engaged in Government work, military, naval, and scientific, it promises to hold an unique position among American societies.

Its officers are: President, T. W. Smillie, Smithsonian Institution; Secretary and Treasurer, Edgar Richards, Department Agriculture.

Yours truly,  
EDGAR RICHARDS.

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## THE DISPOSITION OF THE HANDS.

### SECOND PAPER.

Why do photographers, good and bad, pay so little attention to the hands? There is scarcely a day passes during which I do not see some otherwise admirable photograph, utterly spoiled by a clumsily posed hand or arm. You have during the last twenty-four years labored diligently and faithfully to impress upon photographers ideas of art in pose and lighting, and I know there are many in the craft who would gladly testify to your great help.

I shall not attempt to lay down any rules for posing the hands or feet, but I will write about some most excellent pictures that have embellished your magazine this year, and try to partially explain why they appear so; and to call attention to their "Disposition of the hands." Look at the illustration of the issue of January 15th, a "Portrait in Vandyke Style."

Probably your first impression will be that it is a very easy, common-place position. Granted, without a murmur; but how many of you can pose a man to appear as well as this? Here I contend the brain of the artist is very strongly shown, for the

natural position of the violinist would have been with the left arm carried further to the left, and the right hand resting on the violin under the bridge. Now for a moment imagine the consequences had the photographer allowed him to pose in that way. The left arm would have been thrown outward from the body, forming a V line, the fingers of the left hand would have appeared cramped and unnatural instead of assuming the graceful and easy pose they now have. Again, the violin would have been carried further to the left, and would have covered the entire drapery, cutting the figure into two parts, and destroying the left line of the body, which is absolutely necessary to give form. Again, we should have had a large mass of light which would have overbalanced and drawn attention away from the face. Let me here repeat a self-evident axiom, for portrait work, *keep everything subordinate to the face.* Notice, also, the pose of the feet, while the right is placed firmly the left is thrown forward, aiding, by a leading line, the perspective of the picture, and at the same time giving an easy contour to the all important left outline.

Turn to February 5th, Portrait Group by Rose.

Of this series there is one picture that deserves especial mention for the hands and arms. It is of two figures, one apparently in the depths of despair, and the other full of cheerfulness and hope. Notice how every line of the first expresses sorrow and suffering, even to the hand, while in the other the poise of the head and body seem to say "cheer up," and the firm grasp of the hand betokens a warm heart.

March 5th, German Gems.

This set is a homily in itself of some things to DO and some to DON'T. I could write about twenty thousand words and then not exhaust this lot of subjects; but don't fear, I won't ask so much space. I will make a general criticism. The head studies are all admirable in pose and lighting, and are entirely applicable to every day studio work. Of the other subjects, the upper left hand is a suggestive method of posing a lady dressed for the opera. She is just taking a last glance at herself in the mirror. Hands,



draperies, and accessories all in their own proper place, and all helping the picture.

In the upper right hand picture the lady has assumed a sort of "Lady Macbeth meeting Banquo's ghost" pose, and is apparently attempting to lean on the back of the chair. By the pose of the body the right arm should support part of her weight, but there is not the least bit of support in it, and the foreshortening is so great that it appears a deformity. Again, the figure is stout and the twisting of the hips to show the bustle and to bring the train into prominence, serve to increase the appearance of stoutness.

The centre picture shows a lady who has apparently taken too much wine at her dinner party, for her right hand is entirely powerless, and her left attempting to grasp something by which she can steady herself, for she seemingly cannot sit in the chair unless she has something to hold on to.

The right centre head is an exquisite study when you cover the hands and bust. The hands appear here without meaning or form, and then what a wonderful creation that bust must be. The fingers of the right hand disappear entirely within it, and those of the left hand sprout forth in a wholly unnatural manner. Of these three positions I most emphatically say DON'T.

May 7th. This series, I believe, reproduces in full size some of the pictures of the mosaic of March 5th. I have one subject, not shown in the mosaic, that of a lady in a riding habit. Those who are fortunate enough to receive a copy of the PHILADELPHIA PHOTOGRAPHER containing this subject should prize it highly, for more exquisite composition, posing, lighting, accessories, and chemical work have never been given by any journal. I will not attempt to describe its many points of excellence and thus aggravate those not fortunate enough to possess it, I believe it to have been worthy of a place as an illustration *entirely by itself*.

I have written as clearly as my limited abilities will permit of, and I sincerely trust that these rough notes may be of use to some of my fellow-workmen. Let me say as a parting word, when you see a picture that strikes you as being better than the

usual run of work, study the lines, and imagine what would have been the effect had a hand, or foot, or accessory been moved slightly one way or the other. By so doing you will unconsciously acquire a feeling for correct lines and posing that will influence all your work.

Yours sincerely,

WILLIAM J. MOZART.

### INSTRUCTIONS AND FORMULA FOR CARBUTT'S KEYSTONE DRY PLATES.

WE have had so many requests for Mr. Carbutts' formulæ that we give them place here.

#### No. 1. Pyro Solution.

Distilled or Ice Water . . . 10 ounces.  
Sulphite of Soda Crystals . . . . . 4 "

Dissolve and add slowly:

Sulphuric Acid . . . 1 drachm.  
Pyrogallic Acid, Schering's . . . . . 1 ounce.

And water to make 16 ounces fluid.

#### No. 2. Alkali Solution.

Water . . . . . 10 ounces.  
Granulated Carbonate of Potash . . . . . 2 "  
Granulated Carbonate of Soda . . . . . 2 "

Dissolve, add water to make measure 16 ounces.

#### Bromide Solution.

Bromide Potass. . . . . 1 part.  
Water . . . . . 9 parts.

*To Develop.*—For portraits on "Special Instantaneous," to 4 ounces of water add 3 drachms No. 1 and 2 drachms No. 2, and if plate has had proper exposure, the above developer will be found to yield a soft and rich printing negative. More of No. 2 to be added if under-exposed, and more of No. 1 with a few drops bromide solution if over-exposed.

For landscapes and interiors on "Specials," where the exposure may be uncertain, lay the exposed plate in the pyro solution for a minute or two, then into the developing glass put half the quantity of No. 2 as has been taken of No. 1, and pour the pyro

solution into it, and back on to the plate, by proceeding in this manner, adding more of No. 2 to bring out the image, or a few drops of a 10 per cent. solution of bromide to restrain, as may be required, much better results may be looked for than if a full quantity of No. 1 and No. 2 were mixed at once. For *instantaneous views* or very dark interiors, we recommend the following procedure: To 4 ounces of water add 1 drachm No. 2, soak plate in this while preparing the following: water, 3 ounces, of Nos. 1 and 2 each 3 drachms, 5 drops bromide solution, pour off the dilute alkali, and flow this strong developer over the plate; be careful to expose the plate as little as possible to the light used to develop by, no matter how safe it may be considered for ordinary development. Do not hurry by adding more No. 2; cover up the pan and give the developer time to act, when more of No. 1 or No. 2 may be added as may be required. For *instantaneous marine views*, it will be best to treat the plate the same as for landscapes, by soaking plate in pyro solution first.

For landscape, machinery, architecture, etc., on B plates, use  $\frac{1}{2}$  drachm each Nos. 1 and 2 to each ounce water, adding more of each as may be required, No. 1 giving density, No. 2 giving detail and hastening development.

After washing off developer, immerse in following:

*Hardening and Clearing Solution.*

- Water . . . . . 36 ounces.
- Chrome Alum . . . .  $\frac{1}{2}$  ounce.
- Citric Acid . . . . .  $\frac{1}{4}$  "

3 to 5 minutes, then wash and place in the

*Fixing Solution.*

- Hypo sulphite of Soda . . 8 ounces.
- Water . . . . . 40 "

Let remain a few minutes in the hypo solution after all bromide of silver appears to be dissolved out, then wash in running water for not less than one hour, swab off the film with tuft of cotton, while water runs over it, then place away to dry spontaneously.

*Temperature* of development has a great influence on the result. It should be kept, if possible, within a change of ten degrees;

between 60° and 70° F. is a good temperature to secure uniform results. Cold retards development, heat accelerates, and causes flatness, therefore, in summer time less No. 2 solution should be used, and in winter equal parts of Nos. 1 and 4 will be found about right.

*Over-exposure*, if known or suspected, commence development as directed under the head of landscape and interiors.

*Under-exposure* can be remedied in a certain degree, but not entirely, by first soaking plate in water to which has been added 1 drachm No. 2 to 4 oz. water, then use developer composed of half drachm each Nos. 1 and 2 to 1 oz. water, and continue development slowly; but the best remedy, when possible to adopt it, is to expose another plate, giving longer exposure.

In very hot weather, we recommend the use of the alum bath *before* fixing and *always* afterward.

*Intensification.* With correct exposure and development, intensification need never be resorted to. The following formula is, however, very effective:

No. 1.

- Bichloride of Mercury . 240 grains.
- Chloride of Ammonia . 240 "
- Distilled Water . . . 20 "

No. 2.

- Chloride of Ammonia . 480 grains.
- Water . . . . . 20 ounces.

No. 3.

- Cyanide Potass. (re-fined) . . . . . 120 grains.
- Water . . . . . 16 ounces.
- Nitrate Silver . . . 100 grains.
- Water . . . . . 4 ounces.

Add the solution of Silver to the solution of Cyanide, until a slight precipitate remains undissolved.

Let the plate to be intensified wash for at least half an hour, then lay in alum solution for 10 minutes, and again wash thoroughly; this is to insure the perfect elimination of the hypo. The least trace of yellowness after intensifying shows that the washing was not sufficient.

Flow sufficient of No. 1 over the negative to cover it, and allow to either partially or entirely whiten; *the longer it is*

allowed to act the more intense will be the result; pour off into the sink, then flow over No. 2, and allow to act one minute; wash off, and pour over or immerse in No. 3 until changed entirely to a dark brown or black. No. 3 can be returned to its bottle, but Nos. 1 and 2 had better be thrown away. Wash thoroughly and dry.

*Reduction.* In cases of error in development the negative is too intense, the high lights may be safely reduced by the method of Mr. Howard Farmer, viz.: Ferricyanide of Potassium (Red Prussiate of Potash) 1 oz., water 16 oz., Hyposulphite of Soda 1 oz., water 16 oz., immerse the negative in sufficient hypo solution to cover it, to which have been added a few drops to each ounce of the above Ferricyanide solution; *the speed of reduction depends on the quantity of Ferricyanide present.* When sufficiently reduced wash thoroughly. To reduce locally, apply the mixed solution to the wet negative with a camel's-hair brush to the parts requiring reducing.

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### PRACTICAL POINTS FROM THE STUDIOS.

#### ACTION OF LIGHT UPON SALICYLIC ACID.

—It is asserted that the aqueous solutions of salicylic acid, such as are often used in medicine, and as disinfecting agents, are affected by exposure to the solar rays, so much so that a bottle containing a weak solution of salicylic acid which is exposed several hours daily to solar light, loses, sooner or later, all its acid; in this case one or two drops of ferric chloride no longer produce the characteristic violet color. We have observed that a solution of salicylate of lime made with pump water and exposed to light, is also decomposed in a short time, and after a few weeks the bottle contains a great quantity of white and brownish filaments (algæ and bacteria).

ORTHOCHROMATIC plates are now being tried with great success in securing the delicate shades of "spring-time green."

PRINTING COLLOTYPES.—It is claimed that printing collotypes with the electric light offers notable advantages, as first it is not necessary to have recourse to the actin-

ometer, and then, when several exposures are to be made from one negative on a single collotype plate, it is easier with the electric light to obtain uniformity for all the exposures; after exposure the plate is steeped in pure water until all the soluble compounds of chrome are eliminated, and the film no longer has its yellowish appearance. It is said that the water should not be colder than from 48° to 50° F., nor warmer than from 64° to 68° F. It is with water between these extreme temperatures that the best results are obtained in the establishment of Messrs. Waterlow, at London, where collotypes are printed with the aid of machinery.

A NEW FILTERING FUNNEL.—In several laboratories a new filtering funnel is now used. It consists of a double funnel, that is to say formed of two porcelain cones, on the inner one of which rests the filtering paper being pierced with numerous holes. To the external cone is adapted a tube communicating with any very simple appliance destined to keep up a partial vacuum between the two cones, or which permits the introduction of steam.

One of our journals of chemistry remarks that filters should never be filled to the top; this, nevertheless, happens rather frequently in workshops and then it is no rare thing to see the liquid climb over the top of the funnel and spoil the filtration. This accident may be avoided by rubbing the edge of the funnel with a little grease or paraffine.

LECTURE OF MR. WOLLASTON ON PHOTOGRAPHIC PELLICLES.—At the London Photographic Association Mr. S. B. Wollaston recently gave a short but interesting lecture upon the sensitive pellicles recently placed in the hands of photographers. The author calls attention to this fact that it is always necessary to avoid strengthening when working with pellicles. It is better said he, to develop the negative with care, and if the exposure has been sufficient the negative will always be good. In case of a too long exposure, one, for example, eighty times longer than necessary, it is possible, by steeping the pellicles in a solution of bromide of potassium and employing after-

ward a diluted bath containing but a small quantity of alkali, to obtain a negative which leaves absolutely nothing to be desired. The author presented several samples of his work. He prefers a developer composed as follows :

## No. 1.

Sulphite of Soda . . .	6 ounces.
Distilled Water . . .	41 "
Pyrogallic Acid . . .	1 ounce.
Nitric Acid . . .	123 grains.

## No. 2.

Pure Carbonate of Soda . . .	4 ounces.
Ordinary Water . . .	41 "

For use mix 1 fl. ounce of No. 1, 2 fl. ounces of water; 1 fl. ounce of No. 2, and up to 5 drops (maximum) of a solution of bromide at 10 per cent.—DR. PHIPSON in the *Paris Moniteur*.

LEICESTER AND LEICESTERSHIRE PHOTOGRAPHIC SOCIETY.—A meeting held in the Mayor's Parlor, Old Town Hall, on the 13th inst., President George Bankart in the chair.

The President, in a paper on "The Influence of Little Things in Photography," opened by saying that numerous failures might be traced to inattention to small matters, which he instanced by the fact that dust on the plates was a fruitful source of trouble, and recommended that the transparent spots produced by it on the plate should be spotted out with a suitable medium before varnishing. Referring to exposure, he said that any hard-and-fast rule could not be laid down. One maxim he impressed on his hearers was always to expose for the shadows and let the lights take care of themselves. Development he considered secondary to exposure, as great range was permissible in this process; while in all he advocated cleanliness, dirty trays being a prolific source of trouble. Exactitude in weighing and measurement was strictly enjoined, and the rule-of-thumb in apportioning ammonia, pyro, and other chemicals was much to be deprecated. Retouching he considered quite legitimate and very useful, as by its aid breadth was secured without flatness. In the case of high lights being too decided and demonstrative,

he recommended scraping the film with a sharp penknife and light touch to reduce them. He also advised, in landscape photography particularly, to avoid front light. He closed a clear and instructive address with a few useful hints as to printing, and other matters connected with the art.

## BIRMINGHAM PHOTOGRAPHIC SOCIETY.

—E. H. Jaques there gave his paper on "Instantaneous Pictures and Appliances." In the course of his remarks he said: "I find when showing or exhibiting photographs, that the greatest attention was called to instantaneous pictures; the great variety of subjects and naturalization of effect lent a greater charm to the ordinary land or seascape, such as sea waves, clouds and ships, crowds of people, and other living objects, and lately have turned my attention to this class of work. I will now proceed to show you how I got the prize pictures, and the apparatus, etc., by which those and all my rapid negatives are done." The lecturer commenced with the shutter, showing a large variety, beginning with the original drop-shutter down to the most modern ones of the present day, but said he preferred and always used the one made by Place; this, to his idea, gave very good exposure both for foreground and sky, and almost any speed can be got with it. Passing on, he came to the view-finder, or rather spot-finder, to enable one to see (say, for example) when on board one steamer to be sure of having another steamship on your plate, even while the vessels are both tossing on the waves. "Having gathered from our Mr. Foster's lecture a little time back some valuable hints as to composition and the strong (forte) points of a picture, I made a light wire frame and fastened across four black threads forming a corresponding design of these points. This I place on the front of the camera, and at the back over the focussing-glass I place a piece of flat brass, which, with hole in centre, forms the eyepiece. Now, having focussed for a certain distance, I insert the slide and open same; then, holding the camera by the hand (resting it on the legs to steady it) I look through the eye-piece at the frame with the crossed threads, and the moment the object required comes across the points

wanted, loose the shutter with the pneumatic release, and the result is always correct." He next spoke of having had his best successes with Paget and Ilford rapid plates, and recommended slow development, and gave the developer he uses.

A.—Carbonate of Potash . . . . .	8 ounces.
Oxalate of Potash . . . . .	6 "
Water . . . . .	30 "
Sulphuric Acid . . . . .	3 drops.
B.—Sulphate of Iron . . . . .	4 ounces.
Water . . . . .	10 "

Use 1 part of B to 4 parts of A. To accelerate or complete the development, use drops, as much as needful of

Bromide of Ammonium . . . . .	1 drachm.
Ammonia . . . . .	1 "
Hyposulphite of Soda . . . . .	10 grains.

He also recommended the Paget developer. The lecture was interspersed with numerous practical hints and illustrations, and was listened to with great attention and benefit.

EXPERIENCED wood-workers have always contended that a glue joint, properly done, is stronger than the wood itself. And yet joints often give way at the surface where the glue is used, which is accounted for by bad material. A similar reason is frequently the true cause, which few artisans wish to acknowledge. It is merely that skill is lacking. In gluing wood, it is asserted by competent authority, bad work is produced by applying glue to both surfaces. A good job is secured by applying the glue hot, but not extremely so, to one surface, which should be cold, while the other surface should be heated at the stove, but should have no glue upon it. By this method the glue will permeate the wood and bind the surface together firmer than nature binds the fibres. It is said by good cabinetmakers that if these precautions are taken, less difficulty will be found with glues which, skilfully handled, usually will do the work required by them.

MR. A. R. DRESSER, of Springfield, Bexley Heath, Kent, England, writes us as follows:

"I forward to you by post a few prints done on Alpha paper, a new printing paper

which is for sale in our market, and which I think is permanent.

"We have had some interesting evenings at the Camera Club, on Thursdays, and get a lot there to talk on photographic subjects, and learn a lot from each other. The last subject, "Alpha-paper," was very interesting, and a number spoke; but I was able to show some prints (enlarged) done in 1884, and toned in hypo, gold and platinum bath, which were as good as the day they were made, and yet these same prints had been hanging, facing the sun, for three years.

"I have just bought a library of old *Year Books*, from 1860 to date, and am much amused to see that all our new (?) inventions are really old ones in a new dress, viz., film stripping, Woodbury gives full particulars in *Year Book* of 1871, and in the same year Col. Stuart Wortley speaks of using plates dyed with various colors, so as to get the picture more perfect; in fact, we are going back to the first, but improving on those times. I am stripping my old glass negatives, all worth it, and making films of them, and by so doing they pack easy, and do for carbon printing, and save any chance of breaking; I find it easy to do, and I have so far spoil none. The way I do is to put the negatives (of course, not varnished) in water for ten minutes, then hydrochloric 1 drachm to water, 2 ounces, for 10 or 15 minutes, until the film is soft, then wash under the tap for a short time, and then squeegee, a piece of skin as sold by Eastman Co., on the film of negative, let it dry, then cut the film all around one-eighth of an inch from edge of glass, and all comes off at once. I don't know that it is any way new, but in some cases it is of great use.

"I bought the PHILADELPHIA PHOTOGRAPHER from 1860 to date, all bound, and am busy looking it over, and find plenty to read, but find plenty of the old silver prints going. I find in silver printing, when toning, if you add to the hypo bath a half grain of gold to each sheet of paper to be toned, you get better results, and the prints will not fade in the hypo as they do sometime when not using it.

"I have not begun my summer photography yet, but when I do if I get any good negatives I will send you some prints from

them, as I hope to do some good work this year, and hope to learn to do better year by year. I have just had made a good printing frame for printing in sky, etc., with bromide papers (where image cannot be seen), and find that it works well; and also a good washing-trough for prints and negatives, which I am going to show, and will forward you full particulars, as I am going to have drawings made."

The prints on Alpha paper sent by our friend are very excellent—much more soft and velvety than bromide gelatine prints—both portraits and landscapes. It also seems possible to secure a great variety of tone. They are more like platinum prints than any others we have seen. As yet, we do not know what "Alpha" paper is—except that it is bound to be much used. No doubt it will be introduced and manufactured here shortly.

## Editor's Table.

THE sweetest picture which has come to us for a long time is from Messrs. HERLOCKER & SCHAAD, Freeport, Ill.—of a dainty little maiden in white cap and grandma's spectacles, and a face as full of lovely smiles and sunshine and dimples as only such a little darling can be. The photography, too, is admirable in every particular.

MR. M. McMICHAEL, Buffalo, N. Y., has favored us with two fine examples of his cabinet work, artistically and technically admirable—such as we hope to embellish our magazine with presently. The pictures remind us of Grecian portraits.

MR. W. H. ZOELLER, Greenville, N. C., sends us two of his "black vignettes," which are carefully lighted and posed and well printed. Mr. ZOELLER is ambitious to do the best, and secures pleasant expressions in his portraits.

MESSRS. ALLEN & ROWELL, Boston, Mass., have sent us a fine carbon cabinet of our friend DUNHAM, who was killed in the Riviere disaster. It is a capital likeness.

READY SENSITIZED POSTAL CARDS.—MESSRS. W. H. WALMSLEY & Co., 1016 Chestnut Street, Philadelphia, have recently placed in market postal cards sensitized with Ferro prussiate, which any one can carry in the satchel, and make prints of scenes captured, en route. The conceit is a novel one, and will become very popular. Some fine prints thus made have been sent us by the manufacturers.

THE SCIOPTICON Co., 26 Colebrook Row, London, N., Mr. GEO. H. SMITH, manager, has sent us a new catalogue of lantern slides, with a supplementary one of new scientific subjects. Mr. SMITH is one of the most skilled lantern men in England.

PICTURES RECEIVED.—From Messrs. HEIMBERGER & SONS, New Albany, Ind., two 11 x 14 prints of a railroad cut and tunnel, which are admirable examples of careful choice of light and skillful development. They are beautiful.

THE Astor Library still asks help to make up its broken sets of our Magazine. Please see former list of wants.

MR. J. CARBUTT, the veteran dry plate maker of Wayne Junction, Philadelphia, has published his large circular in the Spanish language. This tells a volume, and no doubt the "Instrucciones y formulas" will be found acceptable in Cuba, Mexico, and South America, as well as in Spain.

*The Photographic Times Annual* is having a re-boom. It is a splendid work. Secure a copy before the second edition is all sold.

MR. B. J. FALK, 947-951 Broadway, has favored us with two large electric light stage pictures of "The Old Homestead," which are very carefully managed and well done. Mr. FALK gained much fame in this class of work several years ago.

WE regret to learn of the sudden death of Mrs. FRANCIS MASON HOUGH, wife of our es-

teemed contributor, EUGENE K. HOUGH, Esq., just after they had removed to their new home in Fredonia, N. Y. She was a lady much beloved by a large circle of friends.

Mr. A. D. FISK has removed to better quarters at No. 17 Murray St., New York.

Mons. LEON FAVRE, whose French enamelled photographs are so famous, has shown us some admirable photo. miniatures on metal gold. He is making them for the trade—on watch cases, pins, etc. His address is No. 236 W. 44th St., New York—not 46th Street, as the advertisement had it.

Mr. J. C. SOMERVILLE, St. Louis, Mo., has favored us with his his new mammoth catalogue—nearly 200 splendid large pages, and full of cuts.

*The Photographische Rundschau* is the name of a new and very handsome magazine, which comes to us as the organ of the Amateur Photographic Club of Vienna. The initial number is embellished by an admirable marine view. We wish it continued usefulness and a good time. Mr. CARL SRNA is the editor, vii. Stifgasse, Vienna.

Mr. CARLES HELLMUND has favored us with a very picturesque view of the Cascada del a Sirena, near Macuta, Venezuela. The choice of view and of light, and the exquisite development of every fine detail, render it very charming.

THE ACME BURNISHER Co. makes an announcement which is fully sustained by the results produced. The Company is reorganized now, and making efforts to push the splendid machine and make it shine all over the world. Great preparations are being made to put a polish unequalled upon the P. A. of A. Convention.

ONE of the most earnest men in our profession is Mr. G. GENNERT, of this city. Although now a veteran in our ranks, he is one of the hardest workers we have. Few understand how much he did in person last year to promote good feeling between us all and our co-workers in Germany, and how many splendid examples of work he secured from there for our examination and study. His frequent visits to the "Vaterland," to attend to his large Albumen Paper business (Dresden), gives him unusual opportunities.

He informed us in a recent interview that his sales of paper were never larger nor more satisfactory. It is now sold everywhere. Mr. GENNERT has also to boast of the success of the "Eagle" Plate, which has had his individual push since the first one was coated. No doubt he has some surprises for August.

MESSRS. LOEBER & Bros., New York, have a very ingenious device for rocking the plate during development. A great time-saver. Send for description.

AT DALY'S Theatre in this city, Shakspeare's "Taming of the Shrew" has had a large and deserved run. The play, as rendered by Mr. DALY'S Company, is not only an intellectual but an instructive æsthetic treat. Some of the stage settings are not only artistic, but they are correct, and the groups composed magnificently. After a good deal of study as to the best means of lighting the scenes, the PHOTOGRAVURE Co. attempted five of them by electric light. Each one turned out an eminent success.

Of course, the banqueting scene is the most elaborate and the best, as it is the climax of all. A selection of this subject has been made to embellish our Magazine presently. When the time comes, we shall have much more to say about the splendid pictures and their production. With negatives taken by electric light, and prints by the most lovely of all processes, thus giving Old Sol the go-by entirely, we think we have a pleasure in store for our patrons that is decidedly unique and well worthy of being named the highest reach our art has made beneath the stars. Some of the negatives were made by Mr. W. J. MOZART, whose interesting art paper appears in this issue.

OBITUARY.—Our old friend and veteran photographer, JAMES E. McCLEES, has passed away. A sketch of his life and work is in preparation for our pages.

WILSON, HOOD & Co.'s NEW ESTABLISHMENT.—At last we have been privileged to make a visit to the new and splendid store of this veteran firm at No. 910 Arch Street, Philadelphia. We found it bristling and shining with freshness throughout. A case of apparatus at the wide street entrance, as pretty as a window of plaques or bric-a-brac metal and wood; a wide and deep second floor for the main salesroom, newly stocked—all the fixtures painted in quiet tones, the departments divided, and some sections of

the shelves fairly iridescent with the colors of the varied dry-plate labels, novel ways of keeping goods; safes for lenses; hangings for the show of backgrounds, and cases for cameras, all make a very attractive show and a convenient place to buy. Mr. BELL'S new apparatus for amateur plate coating, and MARCELLUS'S new drop shutter, attracted us most favorably, though we were dazed on all sides by new things. There is another new thing we have not mentioned—there is not a man or boy employed in the place who cannot develop a plate, and tell all about how to do it. Then there is an *old* attraction to us there—"Billy," the colored gentleman who "came up with the soldiers in '65," and who has packed the goods for WILSON, HOOD & Co. ever since. No one can tell what he has broken in his day. Two of the earliest customers of the house were A. MCCORMICK, Esq., Oxford, Pa., and M. MILEY, Esq., Lexington, Va. They met at the new store a few days ago, and it was as good as a "war story" to hear those disciples talk. The new store is a marvel to them—and to everybody.

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THE BROMO-GELATINE PAPER CONTEST.—What looks somewhat like a calamity seems to be falling upon us when we see two splendid houses, whose names are household words with us, engaged in legal contest. But there are some things in this world which it seems impossible to fix without such a contest. Shame upon our patent laws! Such a contest must pass the courts before a patent can be considered really sound.

Mr. T. C. ROCHE has a patent for manufacturing Bromo Gelatine Paper, and Mr. GEORGE EASTMAN one or more for a machine for coating such paper. Suddenly the generous license or indifference practised on one side and the other ceases to be a virtue, and the law is appealed to on both sides.

So far as we can see there is a *just* side, and doubtless it will be shown. We shall not enter into the discussion at present, but the purpose of these notes is to show our readers how *they* stand, and how the contest may affect them; *not*, however, as legal counsel.

The EASTMAN Co. first asked that E. & H. T. ANTHONY & Co. be restrained from using their machine. As the machine had not been used, its usage could not be stopped.

Then E. & H. T. ANTHONY & Co. desire and propose to restrain the EASTMAN Co. from making paper after Mr. ROCHE'S patent, and notify buyer, seller, and user that they are all liable for damages. This brings up the query from the

trade, "What are we to do?" We have no answer from the EASTMAN Co. as yet, but subjoined is the answer of Messrs. E. & H. T. ANTHONY & Co., which is straightforward and manly, and even generous, and sums up the information we have at the present writing:

NEW YORK, May 9, 1887.

DEAR SIR: With regard to the stock of Bromide Paper of the EASTMAN manufacture which you now have on hand, we have commenced suit against the EASTMAN DRY PLATE & FILM Co., GEORGE EASTMAN personally, as makers, and against the SCOVILL MANUFACTURING Co., as sellers of the paper, for infringing the ROCHE patent, and have instructed our counsel to press the case with all possible speed, and have invited the EASTMAN Co., through their counsel, to facilitate an early decision. It will be impossible for us to get the case heard before next fall or winter. We would prefer to try the question of the validity of our patent with the manufacturer, rather than with dealers; but, in the meantime, must insist most strenuously that our rights to the paper be respected by all. If your purchase of the paper now on hand has been absolute, and without any right on your part to return it, we should not wish to throw the loss of the paper on you. At the same time we are advised by our counsel that we ought not to sanction or authorize its sale, and therefore cannot waive any of our rights. All we can say is, that we do not want to give you any unnecessary trouble or annoyance about your old stock. Of course, we should feel very differently about future purchases by you, and after the notice from us, and if we should feel obliged to commence a suit against you on account of such purchases, we should probably be advised to include *all* claims. Please send us the amount of stock you now have on hand.

Yours truly,

E. & H. T. ANTHONY & Co.

The question resolves itself into this. By using the paper manufactured by E. & H. T. ANTHONY & Co., under the ROCHE patent, there is no loss by infringement. On the other hand, if it should be proved that the ROCHE patent is a valid one, all persons liable would be subject to adjustment for loss of the profits and damages in its use. Each one must judge for himself which is the safer way.

We have some splendid contact prints and enlargements on the ANTHONY paper, and they are superior in every way—rich, velvety, round, and free from all flatness and grayness and stain. Nothing can be better.







F. W. GUERIN,

ST. LOUIS, MO.

THE

# Philadelphia Photographer.

EDITED BY EDWARD L. WILSON.

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## WILSON'S QUARTER CENTURY IN PHOTOGRAPHY.

THE above is the name of a work we have just issued. It is not a history, but an absolutely practical text-book, good for all time.

For the past two years we have been largely engaged in selecting the matter from the literature of our art, and especially from the *twenty-four volumes* of the *Philadelphia Photographer*—1864 to 1887.

Besides culling, we have also condensed, until able to frame a work that we believe will be acceptable alike to the learner and to the earner of bread by means of the camera.

In size the book is the same as Wilson's *Photographics*, but it contains at least one-third more pages—over 500 in all. It is handsomely bound. It is planned the same as *Photographics* (with notes by several hundred co-workers), and yet we believe there is not a line of repetition in it.

It covers more ground than *Photographics*. And although it tells over some things a quarter century old, it is largely devoted to modern photographic practice. For example, more than one-fourth of it is given up to gelatine processes—glass and paper, negative and positive.

The illustrations almost equal the number of pages. They include nearly forty engraved directly from first-class American paintings, as studies for the chapters on "the Application of Art Principles" and "Outdoor Operations;" over fifty illustrate the optics of our art; forty illustrate the studios of the world, and their construction. Of novelties for skylight and dark-room use, such as screens, shades, reflectors, back-grounds, tanks, dishes, levelers, stops, lens-

hoods, shutters, copying-tables, etc., there are nearly one hundred woodcuts. With an immense array of carefully selected, practical articles, useful in all studios, a thousand or more wrinkles, dodges, suggestions, and hints from the best operators in the world, are classified and woven into order. All are copiously indexed.

As in *Photographics*, so in *Quarter Century*, we have endeavored to frame our own views, in numbered sections, into a carefully condensed, concise lesson-book, at the top of the pages. For the foot-notes, each section numbered, we have drawn from men and women whose skill we know, and undoubtedly we have had a magnificent choice. Such a work could scarcely help being useful. It has been our earnest desire to make it so from beginning to end, in commemoration of our twenty-fifth year in photography—the completion of a quarter century of photographic work.

We submit a list of *The Contents*. In every chapter, we have tried to be thorough and satisfying. It would have been far easier to have made a bulkier book.

1. The History of Photography.
2. The Theory of Photography.
3. Light.
4. The Camera.
5. About Lenses.
6. The Diaphragm, or Stop.
7. Glass-house Construction.
8. Under the Skylight.
9. The Application of Art Principles.
10. Outdoor Operations.
11. Exposure, or the Question of Time.
12. Concerning Chemicals.
13. Dark-room Contrivances.
14. Negative Making, "Wet."

15. Negative Making, "Dry."
16. Negative Making, "Paper and Film."
17. Retouching and Doctoring the Negative.
18. Printing on Albuminized Paper.
19. Printing Drawbacks and Defects, Causes and Remedies.
20. Printing-room Particulars.
21. Peculiar Printing Processes.
22. Color-sensitive Photography—Ischchromatic—Orthochromatic.
23. Photo-engraving, and Pictorial Processes.

The last chapter is on a subject about which there has been but little given to the public as yet. We believe it will prove very acceptable and valuable.

We recommend that very careful attention be given to Chapters 8, 9, and 10.

We wish we could make all workers *feel* how necessary *Quarter Century* is to them, but it would be immodest to try. Therefore, we submit it to you, with the hope that it may be as well received and as useful as *Photographics*, we are assured, is, for it is now into its *sixth thousand*.

While we have added one-third more to the size we have not increased the price. It is \$4.00 postpaid.

Printer and binder have done their full share to make *Quarter Century* an elegant example of book making.

Mr. W. J. Dornan, our excellent printer, who for 25 years has done our printing, wrote before the book was half in type as follows:

Your new book, in my humble opinion, I think a good one, and it fully deserves the popularity of *Photographics*. In many respects it will prove of greater use, and I would not be sur; rised if it reached a much larger sale.

WM. J. DORNAN.

Secure an early copy.

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### OUR PICTURE.

A FURTHER instalment of the promised infantile series comes to us with the end of "Spring" from the studio of Mr. F. W. Guerin, St. Louis, whose "Meditation" last year charmed so many of us. Owing to the difficulty of obtaining enough negatives to print for our edition within any reasonable length of time, we were com-

pelled to use several subjects. In every case, however, each subscriber will receive a child study well worthy of careful consideration and following. It is Mr. Guerin's plan always to consider the character of any child subject presented to his camera as it is to study the moods and manners of his elder patrons. Thus he succeeds in getting such charming bits of loveliness and sweetness.

Much of the technical excellence is due to Mr. Guerin's skill in lighting and development, though, of course, in this respect his hands are upheld by the splendid qualities of the plates he uses. They are none other than *Cramer's "Lightning,"* a brand which is now well and favorably known in every studio in our wide-angled, long-focused Republic. The growth of Mr. Cramer's business from its inception has been one of the photographic phenomena of the dry-plate dispensation. One great reason for this has been the straightforward, manly, generous way in which the distinguished manufacturer has stood up at the seances of our conventions, and given freely of his knowledge in working the process which we all had to learn to master. Mr. Cramer mastering it by degrees now surely stands himself as master of his craft in America—as President of the largest body of practical photographers in the world. His glorious success has been hard earned, and we hope the consciousness of having been such a benefactor may be a delight to him as long as he lives.

Five years ago few would have predicted the possibility of receiving such splendid pictures of babies in—no time at all.

The prints were made on E. & H. T. Anthony & Co.'s importation of N. P. A. paper by Messrs, Roberts & Fellows, Philadelphia. Could better prints be desired?

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### NOTES FROM LONDON.

BY T. C. HEPWORTH, F.C.S.

I TRUST that my transatlantic readers will not imagine that, because I am always complaining of English weather, I am a soured old bachelor with little else to think about. I am not a bachelor—witness the family of sturdy youngsters who almost prevent me

writing this morning and, believe me, I have plenty to think about. But at the same time it is next to impossible to forget this question of weather. Fog, cold, and rain constitute the daily bill of fare, and constantly recall goldsmiths' line.

"Winter lingering chills the lap of May"

rather than the fraudulent accounts of other poets who sing of the merry, merry month of May, etc. There is certainly no likeness to May in London as yet—but a very bad imitation of a very bad February. Hence, photography is simply at a standstill. In the meantime, would-be workers with the camera can well occupy their time in visiting the various exhibitions of pictures—oil and water colors—which suddenly open their portals at this season of the year, for from such workers much may be learnt.

Of course, the Royal Academy Exhibition is the most important of all—and just now when it has only been open a few days it is next to impossible to see the pictures properly, because the place is so crowded. For some years there has been growing a feeling of discontent among many of our artists with regard to the rules governing this exhibition—and a cry for reform has gone up from them which has been disregarded by the powers that be. Mr. Harry Furness—one of the cleverest artists connected with *Punch* has adopted a way of his own as a protest against the academicians. He has opened, in a street close to the big collection, a "Royal Academy" of his own. A collection of pictures which caricature the mannerisms, and tricks of every artist—and which also hold up to ridicule the "pot boilers" and uninteresting portraits of nobodies which fill up much of the best space of the walls of the real Royal Academy. Mr. Furness calls his exhibition "an artistic joke"—but, although the whole thing is done in a good humored way, it is certain that there are some who will not appreciate it as a joke. Ridicule is often a powerful and useful weapon—and, perhaps, in this case it may do much good. The pictures, about one hundred in number, are all in black and white—and will, therefore, lend themselves with great readiness for the reproduction of photography. This is to

be done—and an album will be formed for a limited number of subscribers.

While new apparatus of all kinds is constantly coming into the market, and while the Patent Office terms with specifications of cameras, stands, lenses, shutters, and the like, may we not pause for a moment to ask what becomes of the discarded tools of photography? Take a walk into Covent Garden some Friday, and you will see the place where a large quantity of it finds a temporary resting place. At Steven's sale rooms, where there are sales of periodicals, scientific instruments, etc., you may find catalogued a most extraordinary collection of things modern and obsolete a large proportion of which are of the photographic persuasion. There was lately sold in these rooms some property which had belonged to the late Dr. Diamond, the first Secretary of the Photographic Society of Great Britain. Among the items was one of which the late doctor was very proud, and which he was wont to exhibit as a rare prize to visitors at his hospitable home at Twickenham. This was a lens which had originally belonged to the father of photography—Daguerre himself. This formed a lot by itself—and the auctioneer put it up for sale at the modest sum of five shillings. After a few bids the old lens, with all its memoirs, was knocked down for eleven shillings! It is some comfort to know—as I happen to know—that it has passed into the hands of one who will value it for its own sake, and not at the price for which he was fortunate enough to secure it. The dealers present at the sale did not bid for it because, I suppose, it was not considered by them to be a saleable article. Probably they did not know the name of Daguerre. Truly, are we "a nation of shopkeepers" I said when I heard of this transaction. I muttered, "Sic transit—" "Yes," interrupted my informant, "It's enough to make anyone sick."

A friend of mine, H. A. Fleuss by name, has, after much patient work, invented a domestic hand ice-machine which I feel certain will be found very useful to photographers in hot climates or hot weather. The machine is simpler, more compact, and much cheaper than anything else of the kind. By the working of a small pump a

child can produce ice from this contrivance in three minutes. The machine is an adaptation of the Carré principle—and owes its proficiency chiefly to the perfect action of its pump, which is not only frictionless, but produces a practically perfect vacuum, although worked at a slow and easy stroke. About two years ago, I was sojourning at a country village, “far from the madding crowd,” close to Mr. Fleuss’s house—when this apparatus had so far emerged from its embryo condition as to be able to make lumps of ice as big as one’s fist. It was the height of summer at the time—and we used to amuse ourselves by occasionally leaving one of these huge hailstones on the high-road in the path of some approaching countrymen. The stories that became current in the village were amusing, and recounted how hailstones had been falling about the place from a cloudless sky. Some day I hope to read of the strange occurrence in one of those interesting volumes which deal with Natural phenomena.

[Translated for the Philadelphia Photographer.]

### PHOTOGRAPHIC TECHNIQUE.

WINTERTHUR, the manufacturer of gelatine, gives the following notes for the use of the emulsion gelatine. Before the gelatine can be used for emulsion and light prints, it must be thoroughly cleansed from the gummy substances and gaseous ingredients adhering to it, and this cleansing should be done as follows:

The quantity of gelatine necessary for emulsion or light prints should be weighed, and completely immersed in a sufficient quantity—from one-half to one per cent.—of bromide of potassium solution, and allowed to stand at least an hour to swell. After this the bromide of potassium water should be carefully poured off, and renewed at least four times with fresh, clear water, letting the gelatine stand in each water about fifteen minutes, and before pouring off the water each time it should be thoroughly stirred up with a glass rod. If, after the fourth time, the water should still be muddy, or show much white scum, then further washing is advantageous, but usually four waters are sufficient.

Now, during this time the gelatine has absorbed a sufficient quantity of water, and it is therefore of great importance to learn to know this water capacity exactly; so, after the last pouring off, the gelatine should be carefully pressed and again weighed, and the weight above the gelatine weight proper subtracted from the water proportion of the original receipt, and in this way the emulsion will not be too thin, and the plates produced by it will be of faultless purity.

In order to preserve their mirror-like gloss in “enamel” pictures pressed upon glass, when mounting them on the card, rub the glass plates first with a little wax dissolved in turpentine, polish and rub with chalk, apply the picture and then paste it upon a thin card with gum. After it is dry the picture can be stripped off nicely. Then trim and glue it on to the card proper. They are not distinguishable from gelatinized pictures.

### SILVER PRINTS AND BOOK ILLUSTRATION.

At a recent meeting of the Glasgow Photographic Association, W. Lang, Jr., read an interesting paper on photography and book illustration, and he enumerated a large number of books illustrated by silver prints, thus contributing an interesting item to the bibliography of photography. The following is an abstract of his paper. Talbot published the two books, *Sun Pictures in Scotland*, and *The Pencil of Nature*, and we may take it that the two works in question were the first in this or any other country sent forth to the world enriched with veritable photographs. In 1846 the *Art Union Journal* published, as a supplement, a specimen of Talbot’s calotype. These prints were produced from various negatives. I have been informed that in an early number of the *Glasgow Merchants Magazine* there is to be found one of these Talbotypes also issued in supplement form, but this I have never seen. The first scientific journal in this country to be illustrated was the *Quarterly Journal of Microscopical Science*. The print was published in 1853, and appeared in the April number of the *Journal* that year. There is an edition of

Virgil's complete works, and our interest in it lies in the fact that the work has been profusely illustrated with small silver prints. These we find forming headpieces to the various books of the *Æneid*, etc. Judging from the appearance of the prints, I would be induced to say that they had been sulphur toned in the first instance. The pictures themselves are from studies of the antique. I understand that the publishers of this volume, Firmin-Didot, of Paris, also published an edition of Horace's works illustrated in the same way as the Virgil now before you. These volumes were, at their date of issue, somewhat high-priced. A work published by Collins, of Glasgow, and entitled *Palestine in 1860*, contains silver prints, twenty-four in number, which were taken by a quondam member of this Association, John Cramb. The prints are all in excellent preservation, testifying to the original good character of the work produced. I have here a copy of a work embellished with Frith's handiwork, and it presents to us the leading characteristics of the fatherland of the Jews. The publication of this book, which has for its title *Sinai and Palestine*, is also due to the enterprise of a Glasgow firm, viz., Wm. Mackenzie. The photographs were taken in the year 1867, thirty years ago. I presume that there is no one here unacquainted with *Rambles Round Glasgow*, and *Days at the Coast*. I was quite unaware, till recently, that editions of Macdonald's works had been published with photographs of the places referred to, and I regret I am as yet only able to show one of the works, viz., *Days at the Coast*. The book was issued by Andrew Duthie, of Cordon Street. Throughout the book will be found twelve photographs, the work of Thomas Annan. There is no date of publication attached, but I am in a position to fix the date as about the year 1868. This work here, entitled the *Old College*, being the Glasgow University album for 1869, next claims our attention. You will find therein two photographs, one of the old entrances to the College when it had its home in the High Street; the other giving a representation of the present edifice as it appeared in the year 1869, surrounded with scaffolding, and as you will

see before that, the main central tower had begun to show itself. This print is, undoubtedly, a silver production; I am not so sure of the other one. I think it is a Woodburytype. In connection with this matter of the illustrating of books by means of the silver print, there is one firm in Glasgow that has done a good deal in this way—I refer to Messrs Annan—and through their kindness I am enabled to bring before you several volumes which as yet do not form part of my collection. Messrs. Maclehose, several years ago (1870) published a work entitled *Old Country Houses of the Old Glasgow Gentry*. Messrs. Annan have also reproduced in book form the works of Sir George Harvey and Sir Henry Raeburn. Many may remember a loan collection of pictures that was held in the Corporation Galleries in 1869. An interesting memento of the more prominent pictures then exhibited will be found in the volume lying on the table. It is the catalogue of the complete collection, interspersed throughout with silver prints. There is yet another book to which the Messrs. Annan have contributed the illustrations, entitled *A History of the County of Bute*. The work is by John Eaton Reid. A son, I understand, of Senex Murray was the publisher, and we find throughout the work nine photographs of the principal places of interest on the Island. The date of publication is 1864. Curiously enough, I have just been informed by Messrs. Annan that so recently as 1885 they prepared silver prints to illustrate a book published by Paterson of Edinburgh, *Castles and Mansions of Ayrshire*. Very many other works have been illustrated by Annan, but as they have been done by carbon, we pass them over on this occasion. It is but fair to state, with reference to the illustrations in the last named work, that it was solely at the publishers' desire the silver prints were inserted. Messrs. Annan would have preferred either carbon or photogravure. *Wilson's Photographs of Scotch Scenery* are known to all of us. Could more appropriate illustrations be found for a work such as Scott's *Lady of the Lake*? This edition (published by Messrs. A. and G. Black, of Edinburgh, in 1869) of Scott's famous poem contains eleven photographs

by Wilson of the more picturesque spots. A work on Staffa and Iona, published by A. Marion, Jr., of London, in 1867, contains twelve photographs all emanating from the studio of George Wilson, Aberdeen. In another work, entitled *The Great Works of Raphael*, and published by Bell and Dalby, London, in 1867, there will be found twenty silver prints. It is to be noted that the negatives in the instance have been taken not from the original oil paintings by Raphael, but from what have been regarded as the best engravings of these masterpieces. In this other volume, also published by Bell and Dalby, the same course has been followed; the engravings of the artist's works have been photographed, and not the actual pictures themselves. There is another edition of the *Lady of the Lake*, one published by A. W. Bennet, London, in 1863. The photographs illustrating the book are fourteen in number, and, with the exception of the frontispiece, by Wilson, of Aberdeen, are all by T. Ogle. Many of the views are very fine, having been taken from points of view not generally selected. Bennett seems to have been a publisher who believed in employing photography as a means of rendering his books attractive. This work, *A Walking Tour in Brittany*, by J. M. Jephson, was sold along with a set of photographs (stereoscopic views), illustrative of places visited; and there is embodied in the work a series of photographic notes by Lovell Reeve, I presume the naturalist of that name. I have not these views, but there is as frontispiece a photographic representation of a street view of some town in Brittany; date of publication 1866. In an edition of William and Mary Howatt's *Ruined Abbeys and Castles of Great Britain*, there are throughout the work a series of some twenty-seven photographs of a small size. The prints have had spaces left for them in the letter-press, and have been affixed, I presume, after the binding of the book had been completed. The photographs are all in very excellent preservation; they are by various contributors—Bedford, Sedgfield, Wilson, Fenton, and others. The publisher of this edition is also A. W. Bennett, London. A recently published volume, with silver prints for illustrations,

is the one which I have here, and which hails from America; its title, *A Trip to Mexico*, and the author, H. C. Beecher. As the date of issue was 1880, we would scarcely expect to find symptoms of degradation already. It contains six photographs, and the publishers are Willing & Williamson, of Toronto.

[Translated for *The Philadelphia Photographer*.]

### PHOTOZINCOGRAPHIC PROCESS FOR PRINTING LINE ENGRAVINGS.

THE numerous requests addressed to us on the subject of a very practical process of photozincography, induce us to answer them by publishing this process with all the details necessary for its working. For this purpose it would only be necessary to take up the divers descriptions already published in this journal. But we will group them so as to make an ensemble as complete as possible. There is here question of a mode of printing, giving first a photographic *résérve* on zinc, to be followed afterwards by printing with fatty ink on zinc as on a lithographic stone. The first operation when we have procured zinc of a suitable thickness, say 1 millimetre ( $\frac{1}{25}$  of an inch) for large prints, and  $\frac{1}{2}$  millimetre ( $\frac{1}{48}$  of an inch) for smaller surfaces, consists in cleaning the zinc by plunging it into water acidulated with chlorhydric acid at 3 per cent; with a soft brush the bubbles which are formed on the surface of the plate are removed; then, when the cleaning seems complete, wash thoroughly in water and prepare the metal to render it hydroscopic, that is to say, to give it the properties of a lithographic stone, by immersing it for one or two minutes in the liquid of which our learned collaborator, Captain Biny has given the formula. It consists of an aqueous solution, saturated at the same time, and at the ordinary temperature, of gallic acid and iodine in scales, to which are to be added 2 grammes of solid phosphoric acid for 100 c.c. of the mixture. After a very regular immersion in this bath the plate is washed rapidly, dried between sheets of bibulous paper, and when completely dry,



coated with a solution of bitumen of Judea, composed of

Bitumen . . . . .	5 grammes.
Anhydrous Benzine . . . . .	100 c.c.

To be certain that the benzine is anhydrous, some fragments of very dry chloride of calcium are placed in the bottle containing this liquid. For small surfaces to be covered, the solution of benzine may be poured in the same manner as in coating plates with collodion, and without making use of the turntable. But the use of this appliance is indispensable when rather larger surfaces are to be coated, and in this case the strength of the solution of bitumen should be lowered 3 per cent.

When the bitumen coating is absolutely dry it is coated with a second coating formed of bichromatized albumen. The composition of bichromatized albumen is as follows:

Four fresh eggs beaten to a froth.	
Albumen, about . . . . .	50 grammes.
Water . . . . .	50 "
Bichromate of Ammonia . . . . .	5 "

The whole is well beaten, then filtered through paper, and a few drops of ammonia added to the liquid. The bitumenized plate it placed on the turntable and coated with the bichromatized albumen, avoiding air-bubbles and dust. It is necessary, with a strip of clean paper, to direct the liquid over all the surface so as to well coat it.

The excess is rejected and the film equalized by means of the turn-table, which should be made to turn rather slowly, especially at the commencement, to avoid the forming of bubbles. Desiccation is ended on an iron plate heated to 122° F., and in a dark place, dry bichromatized albumen being rather sensitive. As soon as desiccation is absolutely completed, expose under the cliché, positive or negative, according to the kind of work to be obtained. If it is a question of a line drawing or an engraving from which impressions in fatty ink are to be made, a positive cliché must be used, either from an original design on dioptric paper, or a photographic positive. If it is a question of engraving in relief, a negative should be used, and, on the contrary, a positive for engraving in sunken lines. We

will revert to this last application. It is evident that the exposure varies according to the luminous intensity. In full sunlight, it varies from one to two minutes with positives, very translucent in the whites.

Through paper forming a more or less opaque screen, the time of exposure increases according to the opaqueness of the paper. A few trials will suffice to master the time of exposure. The exposed plate is immersed in water colored with blue or red aniline. All the portions corresponding to the opaque lines of the cliché not having been insoluble by the light, are dissolved in the water, whilst the insoluble portions are dyed red or blue, showing, very clearly, the condition of the *réserve*; if this is very complete, which can be very rapidly seen, the washing is terminated with clear water, and the plate dried. Should the washing not be completed the plate is cleaned and the operation begun over again, as soon as the *réserve* formed by the albumen is entirely dry, the bitumen found in the uncovered portions is to be dissolved by immersing the plate in a bath formed of:

Essence of Tur-	
pentine . . . . .	100 cc. (3 fl. ozs. 3 drs.)
Benzine . . . . .	25 cc. (6 fl. drs.)

Little by little the lines show themselves with the color of the metal, whilst the bitumen covered with the albumen is not attacked. When the solution is ended the plate should be washed in abundant water to drive off the essence, and then exposed to the action of a bath of water acidulated with azotic acid at 3 per cent., during about fifty seconds. The acid mildly bites the zinc in all the lines, but sufficiently to render it capable of easily retaining the fatty ink. On coming from the acidulated water the plate should be washed and then dried, after which oil is rubbed over the entire surface of the plate so as to thoroughly cover it. The greasy substance penetrates into the zinc wherever it is exposed; at the expiration of a quarter of an hour the plate is wiped in order to remove all the free oil, then cleaned in water to remove the *réserve* of albumen, and in benzine to remove the bitumen. It is now ready for printing, gumming is not necessary, it suffices to wet

it, and to use the inked roller; the print will show itself gradually. Owing to the depression caused by the acid, the line is as it were *cloisonné*, from which there results a much finer impression. We possess almost the advantage of copper-plate engraving, whilst using the lithographic mode of inking and printing. Instead of using the oil the roller might be passed so as to form a black surface, and it would be well to expose the plate for a few moments on the reverse side to a moderate heat. The pores of the zinc dilated by the heat, absorb more easily the fatty substance.

To resume, this is a combination in a single process of the two methods published, one by M. Fisch, in 1882, and the other by Captain Bing, in 1883. We do not think that anything more practical and more complete in the matter of photographic printing can be given.

LEON VIDAL.

[Translated for *The Philadelphia Photographer*.]

## ANSCHÜTZ'S MOTION PICTURES AND THE STROBOSCOPIC DISK.

BY DR. F. STOLZE.

ON the afternoon of the 18th of March, I received the following communication:

*Ministry of the Ecclesiastical Department  
and of Medical Affairs:*

BERLIN, March 17, 1887.

The photographer, Anschütz, of Lissa, has an apparatus in my department for the most perfect stroboscopic combination of the motion pictures produced by him (series instantaneous portraits). On exhibition in the Linden, fourth floor, on the 19th, 20th, and 21st of March of this year, during the hours from 12 to 3 in the afternoon. I respectfully invite you to attend.

VON GOSSLER,  
State Minister.

Accordingly, I found myself, on the afternoon of the 19th, in the ministerial department, where Mr. Ottomar Anschütz was busily engaged in showing and explaining to Mr. Ludwig Pietsch the wonderful phenomenon, and its cause. Professor Fritsch arrived at about the same time, and thus we

both participated in the observation of the interesting subject. Before I tell about it, however, I will first state some general remarks concerning the principle of the stroboscopic disk.

This apparatus was invented (almost simultaneously) in 1832, by Plateau (November) and by Stampfer (in December); the former called it "Phänakistoskop," and the latter "Stroboscopic Disk." Its purpose is to combine a number of motion pictures, of which each one is only a very little different from the preceding one, so as to give the impression of a real motion. The apparatus should, then, accomplish in the representation of the phenomenon of motion, just the same as the stereoscope for the phenomenon of bodily seeing. In order to do this, the transaction of the actual seeing of the motion must be investigated. And here, as can be proved by experiment, it is not at all necessary to have an actual perception of all the numerous transitions of motions, but it is sufficient if the separate pictures taken truthfully are disposed one upon another in a roomy manner, and temporarily near enough, so that they can be combined with one another, producing for a perceptive mind the form of the motion. Concerning the actual succession of the pictures, it must be so arranged that the eye shall not only receive the light impression instantly, but that it shall keep it for some time after the light is extinguished. According to the experiments of Helmholtz, who has collected and published the works of his predecessors in this department, the succession of the pictures must take place so rapidly (*i. e.*, if not the slightest scintillation shall occur) that the  $\frac{1}{10}$  to  $\frac{1}{30}$  of a second shall not pass— $\frac{1}{10}$  in weak light,  $\frac{1}{30}$  in strong light. In relation to the roominess or space occupied in the succession, it is desirable that the pictures should always fall upon the same spot, and therefore the arrangement of the apparatus combining them should be very exact. By this, it is perceived, that in reality, moving animals and men, have, beside the inner motion of their bodies, a continued motion in space also, and in this way the whole appearance or phenomenon can be better studied, and thus, too, having a sufficient number of single pictures slowly following one upon

another, all the phases of the motion can be carefully observed. Now, according to these principles, different apparatus have been constructed. First, the stroboscopic disks, these are pasteboard disks about 20 to 30 cm. in diameter, which are separated by a circle into an inner disk of about 15 to 25 cm. in diameter, and an outer ring 5 cm. broad. Upon the inner disk are described 8 to 12 figures close to the periphery, at equal distances from one another, and from the middle point of the circle; these figures represent the phases of a periodically returning and receding motion, in which, of course, it is conditional, that they always preserve the corresponding position to the centre, and to the periphery. The outer ring is broken on its sides by 8 to 12 slits (wheel-shaped), each of which is joined to one of the pictures. The whole disk rotates fast on an axis, while it is held perpendicularly before a person by the handle, so that the picture side is turned towards a looking-glass, and the picture can be seen in this through one of the slits. Unless they change their place, the periodical motion cannot be seen.

A more perfect instrument is the very extended zoötrope found in the toy trade, in which the pictures are placed inside of a hollow annular cylinder open above, while slits cut perpendicularly upon it in a corresponding manner, make it possible to observe the phenomenon directly, which shows itself, as soon as the cylinder is turned quickly on its axis. Since, for the most part, in the zoötrops the pictures are laid in the drum upon loose strips of paper, they seldom agree exactly with the slits; moreover, since they do not always keep within the exact space between the slits, it often happens that the motion pictures, outside of their periodical movement, appear to move either forwards or backwards. In all such apparatus the pictures produced are sharper, but weaker in light, the smaller the slit is.

But when photography taught the lesson of recognizing properly the motion phenomena, these apparatus could never again be used as toys, so long as pictures could be produced by this means. Just as the stereoscope first found its true worth, through photographic consideration, by the reality of detail in the pictures reflected, so in this,

from the moment when a series of pictures, properly taken, are considered stroboscopically, the toy becomes a scientific instrument, and now, by one stroke, not only convinces all the unbelievers, who formerly opposed the series pictures, but also presents to the earnest inquirer possibilities of observation having previously been quite excluded from this department.

I come now to the special description of Anschütz's apparatus. As in the ordinary stroboscopic disk, so here the successive series pictures are arranged circularly upon a steel disk of large diameter. These are diapositives of high finish (lit. ending) and a diameter of 10 cm. From fourteen to twenty-four of these are placed together in a vertical circle according to the motion to be represented. At the highest point of these is a circular opal glass disk 10 cm. in diameter, likewise behind which is placed a Geissler tube wound spirally to a circular face of the same diameter. At the moment when the picture, being set in motion, finds itself directly in front of the disk, a strong induction current is led through this tube, and then broken after  $\frac{1}{1000}$  to  $\frac{1}{2000}$  of a second, so that the tube sends out only for this short time its beautiful light. If the room is now darkened, and the disk made to rotate fast enough, so as to let the pictures follow one another in about  $\frac{1}{30}$  of a second, then the opal glass disk begins to shine with a seemingly continuous light; in front of and before it the motion, which was represented in the series picture, can be perceived; it appears to pass along in elegant measure and excellent completion. The impression of the appearance is, in consequence of its great truthfulness, an uncommonly surprising and effective one, and one can with difficulty tear himself away from these *living* pictures.

The different kinds of steps taken by horses are brought to view in this way. Mr. Anschütz has very successfully reproduced these by twenty series pictures, and it is surprising to analyze this most difficult matter. Finely produced Spanish trot and step are shown, both with twenty pictures; shorter galop with eighteen. In the race-course pictures there were only fourteen pictures, which Mr. Anschütz declared were

too few, as, in consequence, a peculiar appearance manifested itself. In a slow turning or rotation the motion was clearly perceived; but in faster, two separate moving horse pictures, one over another, came to view.

In all these representations the most wonderful truthfulness to nature prevails. The play of the muscles, the movement of the ears, the fluttering of the mane and tail, the jumping of the rider in the saddle—in short, all these little individualities are reproduced in just such an extraordinary manner. I can only compare the impression which this produced on me to that of the first glass stereoscope I ever saw.

Mr. Anschütz is now engaged in arranging his apparatus for projecting pictures also. Some weeks must pass before this can be accomplished; then it is hoped that this wonderful appearance may be presented to the public at large.

The reproduction of the human motion is not yet possible with the present series pictures, because the number of twenty-four single pictures does not suffice for the intricacy of the action. For this about forty are requisite, and Mr. Anschütz proposes to take such a series.

P. S.—Monday, the 21st inst., I visited the representations in the ministry again, and observed two new motions of the horse—the capriole and the leap in the trot; the one with twenty-four, the other with twenty separate pictures. The delusion is again most perfect, particularly the capriole. I will remark generally that in all these representations it must, according to the nature of the thing, be difficult to connect the end of a motion exactly again with the beginning, and it is only by a great number of pictures that one can hope to do this. However, this is no derogation to the value of the method.—*Photographische Wochenblatt.*

## TRANSPARENCIES—AND HOW TO MAKE THEM.

BY JOHN CARBUTT.

EVERY photographer can add to his revenue, and assist in adorning the homes of the people who are constant in their

patronage of our *Art-science*, by making *transparencies* for the window. As will be noticed in the general instructions to follow, the manipulation is very simple and certain. Photographers can introduce and sell a great many of these beautiful ornaments, made from negatives they have, while orders can be secured from new sittings without any talking; they sell themselves. Aside from portraiture, very many photographers have view negatives that can be used for making these elegant pictures, and which will find a ready sale among their patrons; and as we have recently introduced plates with a fine ground glass backing, reducing the cost of the finished picture, and rendering the image in the right position. The requisites are, a deep printing frame a size larger than the negative to be used, with a flat glass bottom clear and free from scratches; crystal plate is best; some thin red enamelled label paper for masks, a Carbutt Multum in Parvo Lantern, or other artificial light, and Keystone Gelatino-Albumen Plates, from Lantern Slide size up. Transparencies can be made same size of negative by contact and exposure to artificial light, or enlarged or reduced in the camera by day-light, with equal perfection in result. To make Lantern Slides by contact, place one of the Keystone thin crystal glass transparency plates over the negative in printing frame, lay piece of dark soft material over it, close down the back, and expose to the *clear* light side of a Multum in Parvo Lantern, or other light, for 10 or 15 seconds at a distance of 20 inches from the flame; use the following developer:

### *Carbutt's Improved Developer for Transparencies.*

A.

Oxalate of Potash . . . . .	8 ounces.
Water . . . . .	30 "
Citric Acid . . . . .	60 grains.
Citrate of Ammonia Solution . . . . .	2 ounces.

B.

Sulphate of Iron . . . . .	4 ounces.
Water . . . . .	32 "
Sulphuric Acid . . . . .	8 drops.

## C.

*Citrate of Ammonia Solution.*

Dissolve 1 oz. citric acid in 5 oz. distilled water, add liquor ammonia until a slip of litmus paper just loses the red color, then add water to make the whole measure 8 oz.

*Developer.*—Add 1 oz. of B to 2 oz. of A, and  $\frac{1}{2}$  oz. water and 3 to 6 drops bromide solution.

Let the development continue until the blacks look quite strong, and detail plainly showing in the high lights; wash off developer thoroughly before fixing, use fresh hypo solution, when fully cleared, wash for half hour, then immerse five minutes in the hardening solution given on first page; afterward wash for half hour, then carefully go over surface with soft camel's-hair brush, or pledget of cotton, to remove any particles of dirt; place in rack to dry. Then varnish with plain collodion:

*Collodion Varnish.*

Alcohol . . . . .	4 ounces.
Pyraxaline . . . . .	30-50 grains.
Sulphuric Ether . . . . .	4 ounces.

When, after shaking, the cotton is dissolved, filter and flow the plain collodion over the dry transparency, the same as when using varnish; when dry, cover with matt and a crystal cover-glass, and bind with binding strip.

Transparencies for window and door decoration should be made on plates somewhat larger than the negative, so that a suitable margin may surround the image. To do this, cut a mask with rectangular or other opening out of the thin red enamelled paper; for an 8 x 10 transparency from a  $6\frac{1}{2}$  x  $8\frac{1}{2}$  negative, take a piece of the mask paper 9 x 11 with two sides cut to right angle; make a line with pencil and ruler  $1\frac{1}{4}$  inches from two sides; from the side line measure  $5\frac{1}{4}$  inches, and from the cross line measure  $7\frac{1}{4}$  inches; cut on these lines with a sharp knife through the paper laid on glass or zinc, and remove the blank; make an x mark on the left upper corner, to denote register corner, place this mask in a 10 x 12 deep printing frame, let it register close in the left-hand upper corner, lay the negative film side up and under the mask; adjust the negative so as to show in proper position through the opening; over this

place a Keystone A Transparency plate, 8 x 10, letting it register in the same corner as the mask; lay over a pad of black cotton flannel, close to the printing frame, expose to the lamp or gas-light 10 to 15 seconds or more, according to density of negative. Develop as directed for lantern slides, and in every other respect proceed the same.

The tone, both of lantern and large transparencies, can be varied from a warm brown to a velvety black. Increased exposure and weaker developer (adding water) with more bromide give warm brown tones. Short exposure and stronger (undiluted) developer give dark tones. The same solutions given for negative intensification can also be used for toning transparencies.

### QUERIES, CONUNDRUMS, AND CONCLUSIONS.

"PRIMITIVE."—Everybody ought to know how to "clean glass." If the glass is very greasy, wash it with an alkaline soap and warm water, dry it with a linen towel, and rub it well with crumpled newspaper, to give it a fine lustre. It is often sufficient to breathe upon the glass before applying the paper. Glass lenses should be cleaned with chamois skin only. Gums are best removed with alcohol. Concentrated sulphuric acid, applied for a long time, will usually so char organic matter that the residue may be easily washed off.

"GOING IT CHEAP."—Of course, if you have plenty of time you "can contrive a camera" for yourself. But if you are real earnest about having a good one, you had better buy it. To show our willingness to aid you, though the information may cause you loss, we add the following:

To prevent the cracking of glue by heat or extreme dryness, the addition to the solution of some calcium chloride is recommended, which retains sufficient moisture to obviate this inconvenience. In this way prepared, glue can be used upon glass and metallic surfaces, as well as upon wood.

To glue leather to iron, paint the iron with some kind of lead color, say white lead and lampblack. When dry, cover with a cement made as follows: Take the best

glue, soak it in cold water till soft, then dissolve it in vinegar with a moderate heat, then add one-third of the bulk of whitepine turpentine; thoroughly mix, and by means of the vinegar make it of the proper consistency to be spread with a brush, and apply it while hot, draw the leather on quickly, and press it tightly in place.

## THE GROWING IMPORTANCE OF THE PHOTOGRAPHIC ART.

BY XANTHUS SMITH.

AMONGST the numerous advantages, or we should rather say blessings, bestowed upon us by the progress of science, none are adding more to that wholesome enjoyment which brightens life's way, than the means which are given us of making pictures by the almost magic art of photography. An impenetrable mystery it seems to the uninitiated; a boxed-up science, only to be got at by some complex key, hard to find. But no, believe me, I tell you truly, the box is not locked. Take courage, lift up the lid, and once you have peeped in, you will find such a tempting and fascinating art revealed to you, and withal so simple, that you will be irresistibly led into an endless labyrinth of enjoyment, and will be building yourself up both mentally and physically in the practice of a delightful and refining art, and following out in a legitimate way one of the universal and higher instincts which are implanted in man—namely, a desire to reproduce that which impresses him in nature as beautiful and interesting.

It has always been the custom for persons of taste and cultivation to devote a greater or less amount of their leisure time to the practice of art. The love of the beautiful in nature, and a desire to portray its objects of interest, have led to the study of drawing and painting as an agreeable pastime, and as a means of fixing beauties, often transient, for continued enjoyment.

In some of the countries in Europe, and more particularly in Great Britain, this art instinct is found to exist to a wide extent amongst people of culture. It has happened that many of the nobility have been great

lovers of art, and we see a striking example in the reigning queen, and in the work left by her noble and talented consort, Prince Albert, of the devotion to art, which, amidst the pressing cares of State drew them to find time for much art study and art work. With such an example it need not be wondered at that wherever English people of refinement are met in travel it is with sketch book or camera, searching out nature's beauties, and transcribing them.

Heretofore, in our own country, from our youth as a people, and our universal striving after wealth time has been too much absorbed in business to admit of the bestowal of much thought upon art, further than in the acquiring of some paintings purchased more as furniture and the notoriety given by their display than from a true love of fine representations of nature.

A change is coming here. Our numerous important schools of art, founded within the past few years in various parts of the country, are disseminating a wide-spread interest in this direction, and one of the most important aids is the practice of photography. The difficulty heretofore has been that a far greater amount of time and means was required to attain sufficient skill, even for the freest sketching, than was within the reach of all save a few of large means and ample leisure. But now, by the wonderful advancement made during the past few years in the processes of photography, a means of art is placed within the easy attainment of all who have the slightest interest in matters of taste, or desire for the portrayal of whatever may be of interest to them. It is an interesting fact to note the change that is taking place amongst the professional artists with regard to photography. Instead of a photographic representation of nature now being looked upon with utter contempt as it was formerly by painters, we see not only a growing interest in photographs, but an actual calling in of their aid; and amongst the younger painters a camera has become an indispensable part of their professional outfit; for they well know with what infinite and wonderful truth of detail and finish objects are given on the silver paper in light and dark; and the utter impossibility, even with days and

weeks of patient work before the scene, with its constantly varying lights, of conveying a thousandth part of its finish. They know well, too, that such aid can in no wise hurt them as painters if they still adhere to getting their coloring by actual work from the scene in nature or from the life.

Correct drawing and true light and shadow form the important basis or groundwork of all good works of art; and all must see the great advantage to be gained by being able to fix this instantly, and to have it for reference throughout the progress of a picture. Speaking of photography as an actual aid to work, think of what inestimable value it has become to those striving in other professions than art alone. The architect is given the power to store his office with hundreds of designs of buildings and details of parts, all from the actual inventions of the ingenious who have wrought for ages before him in his own pursuit. The geologist brings home with him from his tours of investigation innumerable fine detail renderings of rock, and crag, and peak, got as a mere pastime, and a hundredth part of which in the earlier days of science, would have formed the work of a whole corps of draughtsmen. And the physician and scientist may note as he goes all that is valuable to record, and by aid of the sciopticon, present it for illustration to his classes, giving them that vivid conception of his meaning not to be conveyed by words alone.

Dropping the useful and business purposes of photography, and looking at the advantages to be derived from it, simply as an agreeable pastime, we have very much to say in its favor. Who are there that would not avail themselves of the use of this simple means of portraying much that is interesting and dear to them of home or of bringing back with them from excursions pleasing reproductions of that which has impressed them as striking? And for the youth of either sex, a camera can only be a means of refining and elevating—turning the mind, as it must, from the sensuous and frivolous, and leading it in the direction of taste and culture.

The great improvements and advantages which have lately been attained in photography, are the simplicity of the outfit re-

quired and the extreme cleanliness of the processes, the old-fashioned nitrate of silver bath with all its dripping and spotting of clothes and blackening of fingers being entirely done away with. And your work need not necessarily be carried through at once. You can expose your plates in the camera at any time that suits you. They will keep in a dry place for months, nay, even years, and grow even more sensitive, if they change at all, and after exposure they may be kept indefinitely without injury until developed, which is an immense advantage, for when on your summer excursion you need not incumber yourself with any of the apparatus required for developing. All this may be done during the long winter evenings at your own home, as well as the making of your prints, so that if business requires your daylight hours, your photographic work need not interfere with that. And in addition to all this, there is another important advantage for amateurs, namely, that they may only carry through those portions of the process which are the most suitable or agreeable for them to practice. This makes it a pursuit in which ladies particularly may find a great deal of practical enjoyment, for there are now numbers of establishments where all parts of the work are performed in a reliable manner for amateurs, so that they may, if they prefer, only occupy their time in searching out beautiful scenes in nature, or building up interesting ones about home and exposing the sensitive plates; any of the after processes of developing, printing, or mounting, which they may wish to leave out being quickly done for them and at moderate cost.

It is but a few years ago that photographic outfits were so cumbersome and so expensive that they were within the reach only of professional photographers or of persons of large means for purchase and use. Now, however, through the earnest endeavors of a few gentlemen who have been anxious to aid in a wider dissemination of this useful art, and by skill and ingenuity so to improve and cheapen the necessary appliances, as to bring them within the reach even of those of the most moderate means, we have no difficulty in supplying ourselves

with cameras, lenses, and tripods, at little cost, and of such construction as to be readily applied to their purposes even by mere boys. Formost amongst those interested in the perfection of photographic appliances, stand the Messrs. Blair, of Boston. By a fortunate endowment of artistic taste and knowledge, to which they have united the most admirable mechanical skill, they have succeeded in constructing a number of very admirable styles of outfits, probably better adapted to all the needs of, not only amateurs in general, but of the professional photographer for much of the work which he has to do, than any which are now being offered for sale. The attainment of this excellence too has been by progression; it was not reached at once, but has grown steadily, one improvement following another as the art developed and demanded changes to keep pace with each new requirement.

Partly through the necessity of frequently having to choose a close point of view in taking photographs, owing to the impossibility of getting sufficient distance without objects intervening and hiding the view, and partly through a lack of proper artistic knowledge, it has been the custom in this country to work with too short focus lenses, causing a sudden divergence of perspective and consequent distortion in the scene, which is destructive of the picture-like effect which artists always convey in their works; and as a consequence, cameras were invariably made with a draw, or power of extension, which, though ample for the lenses generally in use, was entirely inadequate to a proper use of a long focus lens. The Messrs. Blair at the outset seeing the defect in the prescribed form of cameras, boldly set about making a reform in this important point of construction, and with such success that instead of any resulting disadvantage, the advantages gained have only warranted greater length.

The power to be able to draw a camera—of ordinary size, to a length of some sixteen or eighteen inches, is invaluable to amateurs—working, as they mostly do, with the aim of making agreeable artistic pictures, and being able to choose distant points of view, they may use very long focussed lines. This matter is well understood in Great

Britain, where, from the prevailing genius for landscape art, and the resultant knowledge, from its long study, we only see wide angle work where it is a necessity—and long focus lenses and long draw cameras are universal. Another thing may be said, too in favor of long draw cameras for amateurs. It very frequently happens that they wish to copy small photographs or engravings, or take other small objects which necessitates a close approach with the camera in order that the copy be large enough—and then a very long draw is an absolute necessity. The professional photographer has appliances especially constructed for the purpose, but the amateur having generally but one camera would be debarred from all such work were it one of short extension.

Lightness, as will be seen at once, is a prime object in an outfit. Let one cut down the number of necessary articles to be carried as they may, the weight still remains considerable, and though at the outset of a tramp it is not felt, after some hours' fatigue it is sure to manifest itself unpleasantly. Lightness in every part of the outfit has been attained by the Messrs. Blair, and without in any degree sacrificing that rigidity which is absolutely essential to the production of perfect work—or omitting any of the various movements which are invaluable in a camera, and are well understood and prized by the professional photographer, but which I must particularly draw the attention of the amateur to, namely the ease and rapidity with which the change is made from a perpendicular to a horizontal position of the plate. It as often happens that one wishes to take an upright picture, as one in which the base forms the long way of the subject, and to be able to make this change instantly and at the same time retain the power of being able to swing the plate perpendicularly or laterally so as to give a true rendering of the right lines in a picture is of the utmost importance.

Another point of importance is the ease with which the plate holder is put in place after the camera has been properly focussed. Nothing is more provoking than to have one's camera disturbed or jarred out of place when the position of the subject on the ground glass has been properly obtained.



In fact, such accident often causes the loss of a good subject, where moving objects form a part of it—and any catching or binding in getting a holder in place is almost sure to balk one's best efforts. With the Blair camera, by placing the fingers under the base and giving a slight downward pressure with the thumb, the focussing screer is thrown back when the holder drops in place with the utmost ease, and the pressure being released the screen lies up against it, locking it securely in place and absolutely preventing the leakage of light during the making of the exposure.

In the matter of the holder, also an advantage is gained in being able to use either one of the two styles furnished. I will speak only of the one known as the feather-weight holder—for, although much less expensive, I have found it so perfectly to fulfil all the requirements that I have not used any other. Its extreme lightness, as the name truly implies, is of immense advantage, and going as it does in just half the space of other holders renders it particularly adapted for carrying. The plates are very easily placed in it and removed, and in my own experience I have never had a plate light-struck.

In conclusion, I must speak particularly of a number of other points of convenience and excellence which do great credit to the Me. srs. Blair—the most important of which is the extensions furnished with their cameras which enable the use of much larger plates upon smaller sized cameras. The  $4\frac{1}{2} \times 5\frac{1}{2}$  size, for instance, having an extension enabling the owner to use  $5 \times 8$  plates, the  $5 \times 7$ , an extension for  $8 \times 10$ , and so on.

And their tripod, the completeness, lightness, and rigidity, of which can only be appreciated fully by those who have been annoyed by the use of other makes. And, lastly, there is that thoroughness of construction, and beauty of proportion and finish about all the work turned out by them, which gives it the character of that kind of work which is rather the labor of love than of gain.

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MR. A. PUMPHREY, of Birmingham, thinks he can manufacture reliable "card mounted flexible glass fibres."

## PRACTICAL POINTS FROM THE STUDIO.

**TO FADE OUT PRINTS FOR PHOTOENGRAVING.**—Make the silver print on arrowroot paper. *Do not tone.* Put in *clean fresh* hypo bath until thoroughly fixed. Make the drawing over the photo. in "Higgin's Waterproof American India Ink." Make a bath of bichloride of mercury in alcohol. Place the print carefully in this and let it remain until thoroughly bleached, rinse very carefully with water and dry spontaneously.

**VIDAL'S ASPHALT PROCESS.** (Translated for PHILADELPHIA PHOTOGRAPHER from *Le Moniteur*.) Mons. Leon Vidal tells us of a method which combines the solidity of the asphalt process with the sensitiveness of the Chromate process. First, cover copper or zinc with a solution of asphalt, then with a mixture of albumen and bichromate. When dry, expose to the light under a positive or negative, and then develop in water, which has been colored with red or blue aniline dye. This colors the plate so that the development can be easily followed. After the development the plate is dried, and then treated with turpentine oil, which should be diluted with one-fifth benzol. This dissolves the asphalt in the place left bare by the development, and the plate can then be further treated by the etching or photo-lithographic process.

**DISPLACEMENT OF THE GOLD EDGE OF CARDS WHILE BURNISHING MOUNTS.**—I received some new *cartes de visite* of which the gilt edge was loosened in the burnishing process. In consequence of this the cards were made useless. I attempted to remedy this matter, even spreading white of egg over them, etc., but to no purpose. Finally, in order to be able to use a hundred pictures already mounted, I tried rubbing on talc. It succeeded, and the difficulty was removed. — *Deutsche Photogr. Zeitung.*

I INTEND to have every book published in English. I already have all of Vogel's, Wilson's, Hearn's, Bigelow's, and Robinson's, and consider them the best invest-

ment I have made. A sure way to get good prices and plenty of orders is to do good work; a sure way to do good work is to *read*. The days when the merest black and white patch would readily sell at high prices are gone by, never to return, and the sooner photographers realize the fact the better for themselves. There are just two courses, for each individual photographer can be intelligent, progressive, artistic, and successful, or shiftless, thriftless, mechanical, and a failure. Every one should look the field over thoroughly, choose the better way, quit "kicking," go to work, *work*, *read*, and *think* at least twelve hours a day, and at the end of two years if the work is not at least passably artistic, it will be sure evidence of a lack of ordinary ability.—W. JUDD, Mancelona, Mich.

MR. C. C. VEVERS, of Woodbottom Cottage, Horsforth, Leeds, England, writes to us as follows:

"Both the books arrived here in due course, and I must say they are beautifully got up; *Mosaics* in this respect 'licks' our English annuals 'into fits.' Binding, printing, and paper alike are very neat, but I cannot say in practical information your annual comes up to the English ones—what there is of it is very good, but *there is not sufficient*. As for *Photographics*, it is *perfect*! everything about it is perfect, and from title—no, from *frontispiece* to index every page contains a volume of solid information, such as is not contained in any other *six* works on our art. This book is not one to glance through and then lay on one side to be forgotten—it always contains something new. Since its arrival it has stood alongside my inkstand, and already its well-thumbed leaves testify that it does not stand there as an ornament only.

"I hope you will excuse this 'gush,' but I like to say what I think, and when one's fingers have been useless, and pen idle for over a month, it is a pleasure to again be able to write.

"I send you, per this post, one or two prints. The only one which is worthy of note is a very sickly albumen print of Adel (or Addle) Church-porch, showing a very fine example of Norman architecture and

carving. The church itself is one of, if not *the* oldest, existing churches in the kingdom; it was erected in or about the year 1140 A.D., and services are regularly held in it; it is an object of great interest to tourists and lovers of art. The graveyard which surrounds it also contains some fine specimens of monuments, stone coffins, and the like. One monument of white marble, erected in the churchyard a couple of years ago, is said to have cost upwards of £2000. It was erected to a departed wife—but mark the sequel: the inconsolable widower was *re-married* a week or two ago. Ah! well. Such is life."

The prints sent by our correspondent are admirable examples of English landscape work, and much prized by us. We value his opinion of our books, much.—ED.

EXPERIMENTS WITH BROMIDE PAPER. SIMPLIFIED DEVELOPING BATH.—At the Edinburgh Photographic Society, Mr. Bridgeman exposed, with the aid of magnesium light, some samples of the Eastman bromide paper, and developed the prints by means of the formula published by the manufacturers of this paper. Mr. Wilson asserts that he has made many experiments with this paper, and, in his opinion, a more simple formula answers the purpose perfectly well. He makes a saturated solution of iron salt and a similar one of oxalate, and to three parts of the first he adds one part of the second. The solution has a vinous color, acts well, yielding a purplish black tone.

ISOCHROMATIC EXPERIMENTS.—Mr. Henderson is now undertaking some Isochromatic experiments in which he only uses a yellow screen placed between the camera and the object to be reproduced, without having recourse to tinted plates. It would be very desirable if he were to make known the results of some experiments in which the two methods might be compared, one with the other, in the reproduction of the same object.

THE SULPHO-PYROGALLOL BATH.—At the North London Society there was question of the original formula of Berkeley

for what is now called the sulpho-pyrogallol bath. According to Mr. Cox, the first formula was 1 ounce of pyrogallol acid for 4 ounces of sulphite of soda, and 9 ounces of water, the whole acidulated with a little citric acid. Mr. Mackie said that at present but 2 ounces of sulphite are used for 1 ounce of pyrogallol acid, and that, in platinotypy, a little sulphurous acid is used instead of citric acid.—DR. PHIPSON in *Le Moniteur*.

### PHOTOGRAPHING BY GASLIGHT.\*

BY JOHN BARTLETT.

THERE is nothing novel, nothing strange in the fact that certain salts of silver are sensitive to the moderate amount of actinic force contained in the flame of ordinary illuminating gas. Quite early in the reign of collodion some excellent work was accomplished by the use of such illumination in photographing interiors and dark places, but the difficulties attending the operation, the length of time required for exposure, and the consequent danger of the drying of the plate did not contribute much to the popularity of the process. In fact, it was used only in extreme cases; frequently, merely to show the possibilities of the method.

With the advent of the extremely sensitive bromide of silver gelatine dry plate, one might suppose it would have advanced in favor, but the superiority in power, convenience of application, and cheapness of the electric light, considerably depressed the general interest for it as an artificial source of illumination.

Portraits have been successfully made by gaslight, and even apparatus devised to utilize to the best advantage the force of the flame, but I think it may be safely said, that at present no gallery in the world employs it.

Our object is not to show the superiority of gaslight over the other artificial illuminators, though we do think, had it been allowed, in the struggle for existence, to ap-

propriate more of scientific and general interest, it would have differentiated much further; inasmuch as it possesses certain inherent good qualities which its more favored rivals cannot claim.

We merely wish to call attention to its great value in photographing interiors. Indeed, in this province of the art, it possesses advantages over daylight in softness of the general effect.

In our experiments we did not use any apparatus whatever, not even reflectors, employing merely the light of the ordinary burners, protected by ground-glass globes.

The source of light was not intense, five bat-wing burners of a chandelier suspended from the centre of the room, 15 x 30 feet, the camera being placed at either extremity, and hence necessarily directed toward the light, but low enough to prevent the flames appearing on the ground-glass. A Ross rapid symmetrical lens, six inch focus, was used, and exposures given from ten to twenty minutes. The results will be shown at the close of the meeting, by means of slides in the lantern. We imagine no one would be able to distinguish them from good interiors taken by daylight.

We have photographed the same room when illuminated by diffused sunlight, but have not obtained results as uniform in lighting. Daylight gave more violent contrasts, the darker portions of the room lacking much in detail, while the highly illuminated parts were too intense. It is especially on account of the evenness and general distribution of the light, that we prefer gas to ordinary daylight.

Its advantages over burning magnesium wire are even greater. Our experiments with this pure white illuminator gave very harsh contrasts in light and shade, although we sought to modulate its action by tissue screens, and by distributing the illumination as much as possible. We did not try the electric light.

The exposures of ten minutes with gas lacked somewhat in detail, showing under-time; but those of twenty minutes, as you will see, are pretty rich in detail even in the deep shadows. The plate we employed was, of course, the highest sensitometer number we could secure—some of Cramer's

\* Read before the Photographic Society of Philadelphia, May 4, 1887.

recent extremely sensitive brands. With the twenty minutes exposures we developed with pyro and potash—of the ordinary stock solutions:

Pyro . . . .	2 drachms.
Potash . . . .	1 drachm.
Water . . . .	2 ounces.

which sufficed to bring up all the detail and to give good density without any extra addition of accelerator, which, we think, demonstrates the truth that an evenly-lighted subject really requires less time with a moderate light than one violently illuminated with a strong light.

While making these gaslight photographs, we were induced to try the action of the yellow gaslight in rendering the colors with ortho-chromatic plates.

Carbutt B plates and Seed plates were first placed in a preliminary bath, consisting of

Ammonia . . . .	1½ drachms.
Water (distilled) . . . .	7 "

and allowed to remain for a minute or two. They were then transferred to the ortho-chromatic bath, made according to the formula given in a package of Flandreau's Ortho-chromatic Solution, kindly sent by Scovill Manufacturing Company:

Water . . . .	5½ ounces.
Erythrosine . . . .	1½ drachms.
Ammonia . . . .	2 "

here they were rocked for a little over a minute, taken out, drained, and dried in an ordinary drying closet.

They were exposed upon objects of blue, yellow, red, and green colors, without the interposition of the yellow screen, making use of the light of a coal oil lamp with a reflector placed near the objects, in addition to the light of the gas flames. The time of exposure with the B plates was fifteen minutes; with the Seed, two minutes. The ordinary developer of potash and pyro was used. I was troubled much with fog, especially with the Seed plates, whose sensitiveness was probably affected by the ammonia employed, but the results obtained in the

rendering of the yellow and orange were surprising. I have a couple of prints, one from the fogged Seed plate, two from the clear Carbutt plates, which show this remarkable action. The oranges in the basket were very orange in color, while the flowers were hyacinths of the palest blue, almost white—nevertheless, the deep so-called adactinic color of the fruit is rendered as a high light, as in nature, only a few degrees below the flowers.

In the other picture, the long-necked vase is of a bright chrome-yellow color, which ordinarily is translated dark, the vase immediately behind it is ultramarine blue, the large urn light green, while the recumbent vase is vermilion. This last has scarcely taken better than with an ordinary plate.

The erythrosine therefore would seem to depress the action of the blue, and to render the yellow, orange, and green in their true relations; but not the reds.

Probably it would make an excellent plate for the yellowish greens of spring foliage.

I will confess I made some attempts at portraiture with ordinary plates by gaslight, and, craving your indulgence will let you see them, knowing you will be lenient in your judgment when you find that the subject was obliged to endure martyrdom for three minutes.

I show them merely to call the attention to the possibilities of modelling with light and shade.

I found by using a small hand reflector of cardboard and a shader, one might, if possessed of the skill, model in an artistic manner, the head, by directing the light and shade to any desired part. Of course means could be devised to shorten the time of exposure to less than a minute, and by keeping the reflector and shader in gentle motion, any required degree of light and shade could be secured, and much softness given to the image.

One recommendation has photography by gaslight. It is independent of time and season and state of weather.

We could not help noticing how strange it was for us to be taking pictures in a warm, cosy room, while without the wind and the rain were striving for mastery.

[Translated for *The Philadelphia Photographer.*]

## TO DETERMINE THE SENSIBILITY OF PHOTOGRAPHIC DRY PLATES.

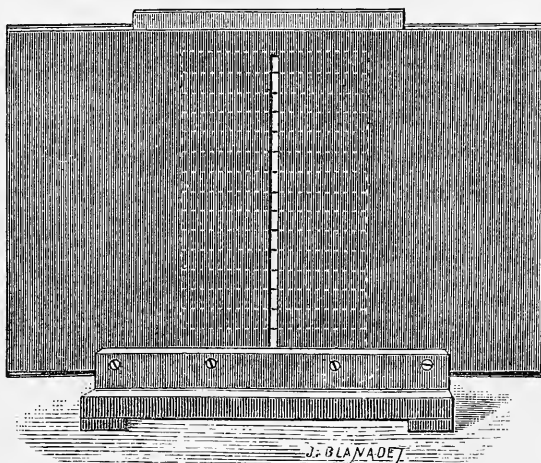
### PROCESS OF LONDE-MAQUENNE.

By this process it is possible to compare a certain number of plates with the greatest ease, and to obtain even the ratio of their sensibility compared one with the other. It is the application to photography of the beautiful method employed by M. Janssen to measure the luminous intensity of the stars. Narrow strips of the plates to be tried are cut and placed side by side in a

able if the screen has been raised each time during the same intervals, that is to say, if all the times of exposure are exact multiples of the time of exposure taken as a unit. Moreover, it is necessary that the intensity of the luminous source should not have varied during the time of the experiment.

The plates when impressed are all developed at the one time in the same bath. By this means is obtained a series of strips of progressive intensity forming veritable scales of tints. If two tints present the same intensity, we have the right to infer that the sensibility of the products used is the same. If a second has been re-

FIG. 1.



negative frame. The frame thus furnished is placed at a distance always uniform from any source of light whatever. It should be possible to intercept the light at will, which is very easily done by using a dark room lantern having instead of the glass a small screen made of cardboard or metal. The frame is uncovered progressively, centimetre by centimetre, and each time the light is made to act during the same interval by raising the screen. All the plates, therefore, receive at the same time the luminous impression, and the comparison between them for a given time of exposure is precise. The comparisons between the different times of exposure are only valu-

quired with one of the plates, and three seconds with another to obtain the same reduction of the bromide of silver, with the same light, it is clear that with the second plate it will be necessary to expose three times longer than with the first. The difference of the sensibility of the plates will be expressed by the ratio of the times of exposure which have produced the same tints. We have had made an appliance by means of which a great number of plates may be tried by this method.

A vertical frame contains thirty strips of glass measuring 18 cent. by 1 cent. The frame is, therefore, 18 cent. in width by 30 cent. in height. It moves behind a screen

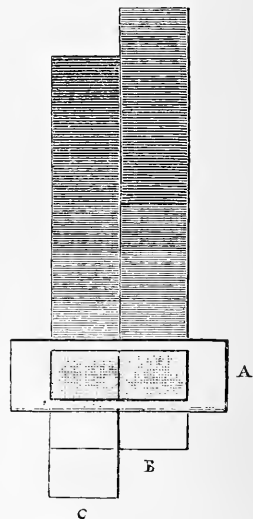
pierced with an opening 30 cent. by 1 cent. By this arrangement each time that the frame is made to advance 1 centimetre (0.39 inch), it uncovers the 30 plates, centimetre by centimetre. It is well not to expose the last strip so as to judge of the purity of the film. The operation ended, if the second has been taken as a unit, the first strip would have been exposed 1 second and the last 17 seconds. After being developed and dried a comparison is made of the plates two by two, behind a cardboard screen pierced with an opening of 1 centimetre by 2.

When two tints are found to be identical, the number of degrees is counted. If in a plate tint No. 1 equals tint No. 3, the ratio is of 1 to 3, because to obtain the identical tints 1 and 3 seconds were necessary. It is plain that this method will only have an absolute scientific accuracy if the source of light is absolutely constant. To obtain the regularity of the luminous source, which needs to last but a few moments, good results may be obtained by means of a magnesium wire, or, still better, by using an incandescent lamp with a rheostat placed in the circuit. In the last case it is very easy to obtain a current of given intensity, and consequently great accuracy in the experiment. It is possible, therefore, by this method to ascertain in a precise manner the ratio of sensibility of different sensitive products. In many cases the amateur will not need to know the ratio of sensibility of the plates compared with each other but which of the plates of those he is trying is the most rapid. What he seeks is the order of sensibility so as to take the most rapid, as we have here to do only with instantaneousness. In this case the mode of proceeding becomes much more simple, and but one experiment with the frame is necessary. The strongest tints will indicate the most sensitive plates. Here we need to pay no attention to the regularity of the luminous source, since all the plates are impressed together and for the same space of time. This method is, therefore, absolutely perfect to give us the order of sensibility of different plates, but will only give us the ratio of sensibility if, as we have just said, we make use of a constant source of light.

## REMARKS.

*First Remark.*—In this method it is always indispensable to have very short exposures, inasmuch as the reductions of the bromide of silver are not indefinitely proportional to the times of exposure, that is to say, that beyond a certain limit, the intensities no longer have a ratio with the increase of the time of exposure. It is not exact to say that sixty seconds will give an intensity sixty times greater than one second. After some time light ceases to act on sensitive films, or rather it acts differently, for the intensity obtained diminishes and light undoes what it had done. The tints become weaker and weaker up to a point at which the plate no longer shows any trace of the image. From this time the light again begins to act, then new destruction. In this manner, by a series of progressive

FIG. 2.



A, cardboard. B, sensitive plate. C, sensitive plate.

exposures we obtain alternating negatives and positives, and this indefinitely.

This phenomenon, pointed out by M. Janssen is highly interesting, inasmuch as it explains the cause of certain anomalies which exist between rapid and slow plates. With a rather long exposure, the first gives a gray cliché, whilst the second gives a strong cliché. The reason of this is that

with the rapid plate we have exceeded the suitable limit and that we have reached the period at which the destruction of the image commences.

Let us take a very rapid plate and a very slow one (Fig. 2) and see the results.

At the first exposure, the plate *B* gives a faint tint, *C* nothing. At the second the tint of *B* is stronger, *C* appears, then up to the fifth the two plates intensify in a parallel manner, the advantage remaining to *B*. Starting from this limit, in the higher exposures, *B* becomes more and more gray, and *C* continually ascends.

*Practical Result.*—*B* is more rapid than *C*. Only use it when instantaneousness is required. In the contrary case *C* is preferable. We have thought it proper to mention this experiment because it shows that two operators acting in good faith can arrive at conclusions diametrically opposite and fail to agree because they have not stated precisely the terms of comparison. To resume, in our method, for the reason given above, but a very short time of exposure should be made. If errors are to be feared in estimating these times of exposure, nothing is more simple than to diminish the intensity of the luminous source, or to recede sufficiently from it. Instead of exposing one second at the distance of one metre from the light, make the distance ten metres and expose ten seconds.

*Second Remark.*—The plates according to their method of preparation have gelatine films of variable thickness. And it might be inferred that the greater or lesser opacity of this film added to the different tints would falsify the results. If we were to apply this process, as does M. Janssen, to measure the intensity of the divers sources of light, it would then be necessary to only use plates that are very uniform and with similar coatings. What we seek for here on the contrary is the preparation giving the most intense negative, and in this case we cannot remove the thickness and the tint of the gelatine which are of the essence itself of the cliché.

*Third Remark.*—It should not be forgotten that, according to their preparation, plates may give different results according to the nature of the developer, and conse-

quently the order of sensibility may be modified by it.

It will be seen at once that certain plates give a better result with an alkaline developer than with a ferrous oxalate one, and inversely; this will throw some light on the interminable discussions about the superiority of this or that developer.

#### *Stop Method.*

There is another method, within the reach of all, and which we recommend on account of its simplicity. It only requires a good stop having a regular motion and giving always identical exposures. The plates to be tried are to be exposed successively before the same object and with the same degree of rapidity, the interval of time between each impression being that only necessary to change the frame and set the stop. The conditions of the experiment will not have varied, if the operation has been done on a fine day and under a cloudless sky. By developing the clichés in the same bath, and in the same length of time, it is easy to determine which is the best, and consequently which is the most sensitive plate. We repeat here what we have already said. To make this exposure successful the time of exposure should be short.

### TO SILVER GLASS PLATES.

The plate to be silvered should be carefully cleaned and then placed very horizontally on a table in a room heated to a temperature of from 77° to 86° fahr. If the temperature were lower, the precipitation of the metallic silver would take a longer time, giving a bad result.

Preparation of the solutions to silver a surface of one square yard :

1. Distilled Water . . .	1 quart.
Tartrate of Soda . . .	154 grains.

Place the salt in an enamelled dish with about eight and one-half ounces of water, and add to it about seven grains of nitrate of silver, heat to the boiling point and until all is dissolved; add the remainder of the water and filter into a bottle.

2. Nitrate of Silver . . .	77 grains.
Pure Ammonia . . .	46 “
Distilled Water . . .	1 quart.

Dissolve the nitrate of silver in the ammonia, stirring until complete solution, then add the water and filter into a bottle. At the moment of using mix the two liquids by pouring alternately the contents of one bottle into the other; now pour on the plate about five fluidrachms of this mixture, which is spread over the surface with the aid of a very clean chamois. Then immediately after, gently pour all the liquid which extends over the plate without running off at the edges. After thirty or forty minutes, at the most, the silver is precipitated in a metallic state and adheres strongly to the plate. The liquid is now removed by raising the plate by one side, lightly sponged and rinsed with a little water; it is now stood up to drain and when dry a coating of preserving varnish or paint is given with a brush. To avoid spots, and to have complete success, it is indispensable to use absolutely pure distilled water. The argentiferous liquids after use should be collected and the silver removed. If a more solid silver surface is required, the operation may be done over again on the same plate. The utensils used in silvering should always be washed in distilled water.—*Archiv.*

### PRINTING PERPLEXITIES.

WHAT follows under this head has been "boiled" for the benefit of many correspondents whose "failures in printing" have come to us recently with as many queries as there are varieties of tones possible.

**THE THEORY OF BLISTERS.**—The production of blisters in albumen prints is the result of endosmose, that is to say, the passage of a liquid less dense through the body of a liquid that is more dense. The remedy has been successful. Here it is:

Sensitize, print, tone, as usual; but, before fixing the print, ascertain the density of your hyposulphite bath. Having poured in another vessel enough water to cover all the prints that you wish to fix in this hyposulphite bath, dissolve in the water enough sea salt to obtain a solution of the same density as the hyposulphite bath. On taking the prints from the bath, place them in

this solution. Introduce a thin stream of water in the saline solution, so as gradually to reduce its density; when the salty taste has disappeared from the washing-water continue to wash in pure water. Small blisters may be made to disappear if the surface of the print is dried between two folds of cloth, and then passed between two hard cylindrical rollers. It is sometimes possible to get rid of large blisters by pricking the paper back of the blisters with a fine needle, and then using the rollers.—*M. BORTONE.*

It may interest those of your readers interested in experiments for the production of permanent prints, if I reproduce here the instructions, originally published by Mr. Crooks, for parchmentizing the photograph:

Take a good sound stoneware jug, holding about a pint, and stand this in the centre of a large pan. Measure out eight fluidounces of sulphuric acid of the above strength (oil of vitriol of commerce will generally be found sufficiently strong to be used), and pour it into the jug; then measure four ounces of water, and pour that into the sulphuric acid—not hurriedly, but taking about ten seconds for the purpose. Stir the mixture now with a glass rod, cover the jug with a plate, and leave it until quite cold. Immediately the water and acid are mixed, great heat is evolved, and the necessity for taking the above precautions will be at once evident, since any breakage of the vessel through the sudden and great heat to which it is subjected will be attended with the most destructive consequences to almost everything that the acid touches.

Have ready three perfectly clean dishes, arranged side by side. No. 1 must be of good porcelain, quite dry, and in size about 10 by 12 inches. Nos. 2 and 3 should be very deep, and holding not less than half a gallon each. Into No. 1 pour the mixture of sulphuric acid and water. Nos. 2 and 3 must be filled with pure water, and into the latter a few drops of solution of ammonia must be added.

Now take the photograph (which must be quite dry), and, in the ordinary way, lay the picture side on the acid, taking great care to avoid air-bubbles; then instantly lift it up, and lay the plain side on the liquid. This will not be at all difficult, as



the wetted surface curls slightly *inwards*, the acid producing an opposite effect to that of water. Any part which is not covered with liquid is now to be gently pressed under with a glass rod or platinum spatula, and the sheet left immersed in the acid for a space of time varying between a quarter of a minute and two minutes, according to the kind of paper on which the picture has been printed. After the sheet has soaked for the proper time, gently raise one corner out of the acid, and, guarding the thumb and finger from injury with a double fold of blotting-paper or a clip, lift it entirely out by means of this corner, and allow it to drain for a few seconds; then, with a quick motion, completely immerse the sheet in dish No. 2, and move it about in all directions, so as to remove the strong acid from the surface as rapidly as possible. Lift it perpendicularly out of the liquid, and plunge it in again two or three times consecutively, and then transfer it to dish No. 3, where allow it to remain until the whole number of sheets are completed, or it becomes inconveniently crowded.

Dish No. 2 must be emptied and refilled with pure water, after about six sheets have been passed through it; and in dish No. 3 a piece of good blue litmus paper should remain, and as soon as this shows the slightest tendency to become reddened, a few drops of ammonia must be added, and the whole mixed well together; for if any, even the slightest trace, of unneutralized acid remain in the paper after coming from this bath, the picture will soon be inevitably destroyed; thus the necessity of keeping the liquid in dish No. 3 alkaline will be evident; at the same time experimentalists must not forget that long soaking in ammonia is prejudicial to the half-tints of the picture, and thus the excess of alkali must be but small.

After coming from the ammonia bath, the sheets will want washing two or three times in clean water, and they can then be dried in any convenient way. The paper, when dry, will have an uneven, crumpled appearance, and will require either to be carefully mounted or passed between rollers to render it smooth again.—G. WHARTON SIMPSON.

It may be said that sulphide of silver formed in the *presence of organic matter*, such as is always present in albumen prints, has different properties, and acts in a different manner, and that the weakness of sulphur-toned prints depends upon this. Some view of this kind is, I think, held by the distinguished French photographer, M. Girard.

To test this point, I took some sensitized paper, and converted the whole of the nitrate of silver into sulphide with hydrosulphate of ammonia. This paper, uniformly black, was then exposed to the influence of the dilute nitric acid for five days; but no sensible lightening of its color was visible.

A point essential to be attended to is, that *pure* nitric acid shall be used, and especially acid free from the lower oxides of nitrogen, as any hyponitric acid present greatly increases its oxidizing power. The acid proper to be used is that which is prepared expressly for chemical analysis.

It will probably be found that this method offers, perhaps, the simplest and most effectual of all tests of the permanency of photographic prints. The great advantage is, that while it acts as an oxidizer of some power, it will not attack metallic silver, and consequently it spares those parts of the picture which we know by experience to be right, and directs its action to those substances whose presence, if they are there, we wish to detect.

The test is applied in the following manner: The print to be examined is cut into halves; one of these is placed in a wide-mouthed bottle, with a glass stopper, and the dilute acid is poured over it. The print can be examined at any time after immersion. A really good print, when taken out after two weeks' immersion, dried, and compared with the other half, ought to show no loss of strength whatever. Sometimes, indeed, the tone may be slightly changed, may even be darker than before; this is unimportant. But the print, after this prolonged treatment with the dilute acid, should have lost no particle of force and beauty.—M. CAREY LEA.

MY experiments in reducing overprinted negatives clearly prove that the difficulty

in reducing pictures successfully, lay in this—that the portions first attacked by any solvent, are naturally the most superficial; precisely those which do most toward giving the picture its brilliancy and transparency. Consequently, there is a tendency in positives which have been overprinted and subsequently reduced, to present a more or less sunk-in and mealy appearance. The amount of this fault varies, however, very much according to the treatment which has been used for bringing about the reduction, as will be seen presently.

All the trials were made upon prints on albumenized paper.

#### 1. BICHROMATE OF POTASH AND CHLORHYDRIC ACID.

The experiments which I had already made upon the action of this mixture upon metallic silver, satisfied me that it would prove an active reducer of positive prints. It proved, indeed, so active, as to require to be used with great circumspection, and in a state of great dilution.

It was found, however, that prints treated in this manner acquired not merely a strong mealiness, but a sort of white haziness, which utterly spoiled their effect, arising doubtless from a production of chloride of silver, as well as a solution of a portion of the substance of the print.

#### 2. IODINE.

Solution of iodine prepared by dropping into water as much tincture of iodine as it would dissolve, reduced the prints very regularly and gradually, and was quite free from the fault of producing mealiness, so conspicuous in the last-described method. It is not very easy to explain this difference, unless it be that the silver is first converted into the dark subiodide, and then dissolved, without the production of yellow protiodide. Some difference in the action of iodine and chlorine certainly exists.

One important caution must be mentioned. When tincture of iodine is poured into water, if the least excess is added beyond what the water readily dissolves, the excess of iodine floats in the form of a fine blackish dust, or perhaps merely a few, almost im-

perceptible, black specks. If these are overlooked, they will attach themselves to the print, and each one will make a small whitish spot, by dissolving out the metal. Thus the print becomes marked with small spots, either paler than the rest, or even entirely white, by which it is utterly ruined. On the other hand, if very little iodine is added, so as to make sure of its complete solution, the action of the liquid is too slow and tedious, and it becomes very quickly spent.

The best way of avoiding this difficulty is to dissolve the iodine, not in water, but in a two-grain solution of iodide of potassium. This solution, as is well known, takes up more iodine than pure water, and its action is not detrimental to the picture.

One objection of rather a serious character exists to the use of iodine in either of these methods: it acts upon the starch with which photographic paper is mostly sized, and forms an intense blue compound. The albumen face of the picture is to be sure not affected, but the blue color penetrates through the very body of the paper, and shows through the albuminous coat, rendered quite transparent by the water.

The evil of the production of this iodide of starch is twofold. First, it for the time darkens the lights of the picture in such a way as greatly to increase the difficulty of judging as to the precise amount of reduction which has been effected, and, secondly, it is necessary to apply some substance of a reducing nature, to destroy the blue color; hyposulphite of soda is, of course, the most obvious, and is what I have employed: a dilute solution produces the desired result in a few seconds. But then the print must be re-washed just as thoroughly as when first fixed; and if, after the hyposulphite destroys the blue color of the iodide of starch, and restores the print to its natural appearance, it is found to have been insufficiently reduced, we cannot re-plunge it into the iodine bath until after it has been washed. The washing need not, however, be so prolonged as when the print is being finished—M. CAREY LEA, M.D.

HERE is a very simple method, inasmuch as it disturbs none of the ordinary operations,

costs almost nothing, and with which I have always been successful.

Pour into a dish equal parts of rectified alcohol at 95 per cent. and distilled water. This bath may be used indefinitely. After the first washing which follows the toning, plunge the prints into this liquid. In about five minutes the effect is produced; the paper becomes more transparent; the whole of the print presents a granulated surface, which need excite no alarm, as it will gradually disappear.

Withdraw the prints, wash them in one water, fix them, and continue as usual.—  
ED. ANDRES.

BLISTERING, one well-known writer has suggested, is caused by the excessive dryness of the paper previous to sensitizing, and that if the paper is left some time exposed to a moist atmosphere, the evil will disappear. I regret I am not able to coincide in this theory, as I have found that paper kept in a cool and slightly moist atmosphere will blister just as much as if it was dry. Having, as I have, to superintend the preparation of thousand of sheets monthly, I find no precaution will prevent certain samples of paper from blistering entirely, although, by observing certain regulations, the evil can be mitigated. It is a mistake to think if blisters disappear on drying, the proofs are none the worse, as it will be found such proofs will become spotty and imperfect much sooner than those which have not been afflicted with this complaint. Whatever may be the cause, it is evidently connected with the preparation or albumenizing of the paper. It may be due to the sizing, or it may be that the albumenizing is too rapidly conducted, the albumen not being allowed time to thoroughly attach itself to the surface of the paper, before it is removed and hung up to dry; but whatever the cause, it is outside the processes to which it is subjected by the photographic printer, namely sensitizing, printing, toning, fixing, and washing. A certain remedy—but, unfortunately, rather impracticable when large quantities of work have to be done—is to pass the toned print through a bath of methylated spirit, which entirely removes the tendency to blister, without in

any way injuring the proof.—EDWARD DUNMORE.

### SOCIETY GOSSIP.

THE first field meeting of the Washington Argents took place May 12, and was a most successful and enjoyable trip.

The canal packet, "Excelsior," had been chartered for the occasion, and the start was made at 9.15 A.M. from Georgetown.

Messrs. Crampton, Dodge, Fischer, Harshmann, Hine, Lee, Richards, Schneider, Smillie, Wales, and White brought their cameras and took such views as pleased their fancy.

Great Falls was reached at quarter before 1 o'clock and, after partaking of a lunch, the members shouldered their cameras and started to get instantaneous views of the Falls. The Falls were unusually high, and full of the "sacred soil" and the members availed themselves of the opportunity of catching the water on the keen jump.

At 3 o'clock the party started homeward, stopping for an hour at Cabin John's to take a few views of the bridge. The boat reached Georgetown at 7 o'clock. The day was a most perfect one for photography, and the various locks, the boat, and party were fired at, without injury, however, and at the next regular meeting the game will be shown by the successful sportsmen.

At the May 4th meeting of the photographic Society of Philadelphia, Mr. Trask showed a series of seventeen cabinet photographs of prominent Philadelphia clubmen, also three composite photographs made from the series. He stated that the question having been raised whether the first or the last impression on the composite negative produced the most striking effect in the resulting picture, he had made the first and second of the composites by exposing on the seventeen originals in reverse order, and the third indiscriminately, but no appreciable difference which could be attributed to this cause could be discovered in the result.

Mr. Vaux, alluding to statements which had been made in the THE PHILADELPHIA PHOTOGRAPHER, that the so-called photographs of lightning flashes are in reality

only pictures of the illuminate: edges of clouds, showed a series of pictures he had made of sparks from an electrical machine. From one to twenty sparks were included in each negative, and their form was so precisely similar to those of lightning flashes that there could be no question that lightning pictures were what they claimed to be.

Mr. Walmsley showed one of Hornnan's Eclipse Outfits, which were sold for the low price of \$2.00, including all apparatus and chemicals necessary to produce photographs.

He also showed some blue prints made upon postal cards which were prepared and sold ready sensitized for the purpose.

SAN FRANCISCO, May 18, 1887.

*Editor of PHILADELPHIA PHOTOGRAPHER:*

ON the 5th inst. was held the regular monthly meeting of the Pacific Coast Amateur Photographic Association, Mr. Tashera, the President, being in the chair, and a good attendance of the members being present.

The feature of the evening was the exhibition, by Dr. S. C. R. Passavant, of specimens of chloride positive paper, manufactured by him. The doctor, in his remarks, said, that while this process of printing is not entirely new, he brought it to the attention of the Society as being something novel to some of its members.

The process consists in coating a non-porous gummed paper with a collodion-chloride of silver emulsion. The printing is done in the ordinary way, as with silver paper, but requiring only about one-fifth of the usual time. The advantages of the use of this paper are its quickness in printing, being five or six times as rapid as silver paper, and its permanency. After printing the image can be easily transferred to a gelatine coated plate, or a suitable piece of wood, or other substances, by squeezing the printed paper face down on the substance to be coated. The gum can then be readily dissolved, and on lifting the paper the image will remain. A brush should be used with plenty of water to take off the gum remaining. The plate or other substance on which the impression is left, is then toned down with sulphocyanide of ammonium, and gold bath (gold, 1 to 100;

sulphocyanide, 2 to 100). It is then fixed with the ordinary hypo bath.

Mr. William Brown exhibited his patented finder, with differential focussing attachment, and in explanation said: "I have attempted to arrange a camera by which any object near or distant may be focussed without removing the plate holder to insert the ground-glass focussing screen. The focus is obtained by a supplementary camera, whose lens is moved in unison with the lens of the camera proper, by a differential lever attached thereto, and thus the images of all things connected with the Society's rooms since the present committee has been in charge."

The usual routine business was conducted and complimentary remarks were made as to the energy displayed by the new room committee, and as to the orderly appearance of all things connected with the Society's rooms since the present committee has been in charge.

SIDNEY M. SMITH,  
Corresponding Secretary.

## PERTAINING TO THE



PRESIDENT CRAMER'S address to the craft will appear in our next number.

RULES AND REGULATIONS CONCERNING EXHIBITS OF PHOTOGRAPHS AT THE NEXT P. A. OF A. CONVENTION.

The prizes for exhibits of photographic work are to be awarded by a Committee of five members of the Association, to be appointed by the Executive Committee.

*Prizes for Exhibits from Foreign Countries.*

For best exhibit of portrait photography from foreign countries, 1 gold medal.

*For Exhibits of Members of the Photographers' Association of America, Resident of the United States and Canada.*

Class A. For collection of portrait photography of any size (cabinet pictures not competing for Class C, may be included in exhibits of this Class):

1 grand prize, diamond badge, for the best exhibit.

4 gold medals for superiority.

4 silver medals for excellence.

Class B. For collection of large photographs; contact prints not less than 22 inches long; print not to be vignetted:

1 gold medal for superiority.

1 silver medal for excellence.

Class C. For collection of 24 cabinets:

10 bronze medals for merit.

Parties competing for this Class cannot compete in any other Class.

Class D. Composition for *genre* pictures of any size:

1 gold medal for superiority.

1 silver medal for excellence.

Class E. Landscapes:

1 gold medal for superiority.

1 silver medal for excellence.

Class F. Best marine views, 1 silver medal.

Class G. Best interiors, 1 silver medal.

Class H. Best instantaneous views, 1 silver medal.

Class I. Best architectural photography, 1 silver medal.

Class J. Best photographic transparencies, 1 silver medal.

Class K. Photography applied to science, 1 silver medal.

The grand prize in Class A is open to all members of the Photographers' Association of America.

Winners of gold medals at the Convention of 1886 are eligible only to the grand prize in Class A this year.

Winners of silver medals at the Convention of 1886 are eligible only to gold medals of the grand prize this year.

Parties competing for the bronze medals of merit in Class C are debarred from competition in any other Class.

The Secretary shall furnish to each member of the Awarding Committee a complete list of the competing entries, certified to by

the Treasurer, that all such competitors are members of the Photographers' Association of America, and not in arrears for dues.

The Secretary shall also furnish to each of the judges a schedule of prizes to be awarded, and the necessary instructions as ordered by the Executive Committee, as follows:

*Instructions to Judges.*

The Awarding Committee shall examine the entire lists, and see that the rules concerning competitors in Class C are carried out, excluding them from competition in other Classes.

Each judge shall separately make his examination of the competing exhibits, and decide upon the merits of the same, giving in each Class No. 10 to the best, No. 9 to the second best, and so on according to the number of medals offered.

The Awarding Committee shall have a special meeting before the Thursday morning session, and combine reports, and come to a final conclusion by striking an average. Awards shall be made accordingly.

As all medals of one grade shall be of equal value, only the rewards shall be reported in alphabetical order, and number of points received shall not be published.

*Rules to be Observed by Competitors for Association Prizes:*

First. All competing exhibits must be from negatives made since the St. Louis Convention, June 28, 1886.

Second. Any person desiring to compete for prizes must remit dues to the Treasurer, G. M. Carlisle, Providence, R. I., before making entries.

Member's annual dues, two dollars (\$2.00).

Non-member' initiating fee and dues, five dollars (\$5.00).

The Treasurer will furnish the necessary blanks for entries, which must be filled and forwarded to C. Gentile, Local Secretary P. A. of A., Chicago, Illinois.

All entries to be in the hands of the Local Secretary fifteen days previous to the opening of the Convention.

All competing exhibits must be without frames or glass.

No exhibit will be received unless the freight and express is pre-paid.

*Resolved.* That space allowed to any exhibit shall not exceed twenty-five linear feet—and each space allotted shall be properly filled with pictures, subject to the rules and under the control of the Local Secretary.

*Resolved.* That the exhibition of photographs connected with our Convention, be considered an Art Exhibition pure and simple, and in order not to detract from this standard, be it

*Resolved,* That no sign of any description shall be allowed to be placed in the halls devoted to the display of photographs except one card to every exhibit, said card not to exceed 7 x 12 inches in size, and to contain only the name and address of photographer whose work is represented.

*Resolved,* That any picture may have its title or subject neatly inscribed thereon, but nothing of an advertising nature will be permitted.

*Resolved,* That the Executive Committee shall be charged with the duty of removing objectionable features.

Grand Prize offer for pictures on Eastman's Permanent Bromide Paper, to be exhibited at the Convention of the P. A. of A. at Chicago, August 9, 1887:

To stimulate the exhibition of work on Bromide Paper, and show what has been accomplished during the past year by our customers, we make the following offer of prizes:

*Plain Enlargements.*

Class A.—\$150 for the best collection of unfinished enlargements.

§75 for the second best collection of unfinished enlargements.

Class B.—\$50 for the best unfinished portrait enlargement.

§25 for the second best unfinished portrait enlargement.

Class C.—\$25 for the best unfinished enlargement from landscape or marine view negative.

*Contact Prints.*

Class D.—\$50 for the best collection of contact prints.

*Finished Enlargements.*

Class H.—\$100 for the best enlarged portrait finished in black and white.

§50 for the second best enlarged portrait finished in black and white.

§25 for the third best enlarged portrait finished in black and white.

Class F.—\$100 for the best enlarged portrait finished in color.

*Conditions of Offer.*—Unfinished prints must be mounted on stretcher or plain white card, and exhibited without frame or mat. Finished pictures may be framed. Plain enlargements must be 20 x 24, or larger; no limit as to size of finished pictures or contact prints. Each exhibitor will be required to certify that all the pictures that he enters for these prizes were made on Eastman's Permanent Bromide Paper, and in case of enlargement, if required by the judges, he shall show the original negative before receiving prize. Each exhibitor will be furnished, on application, by mail, to the Eastman Company, with a printed card bearing number and stating class in which his picture or pictures are entered. Pictures must be sent prepaid to the Secretary of the Exhibition, with name and address of exhibitor marked on the back of the picture.

Prizes to be awarded by three judges appointed at the Convention. The Enlarging Department of the Eastman Company will not compete for any of these prizes.

Grand total of prizes, \$650, to be awarded and paid in cash, at Chicago, August 9, 1887.

THE EASTMAN DRY PLATE AND FILM CO.,  
Rochester, N. Y., and London.

*Prize Offers for Photographs made with the Morrison Lens.*—We are authorized by Mr. R. Morrison to make the following prize offers:

For the best photograph exhibited at the Chicago Convention, made with a Morrison Lens:

The choice of a Morrison Leukoscope Lens, cash valuation, from \$80 to \$180.

A set of Morrison Wide-Angle Combination Lenses in a morocco case, cash valuation, \$80.

The lenses to be suitably engraved with the winner's name, etc.

The awards to be made at the Convention by Judges appointed at that time.—*Scrivell Manufacturing Company.*

*The Blair Cup Prize.*—Last year we announced the magnificent offer of Mr. T. H. Blair, of the Boston Art Club, of a solid silver cup, as a prize for superior photography. Mr. Blair has so changed his original plan as to include the P. A. of A. in his offer, as will be seen by what follows. We have seen the lovely design, and shall have more to say of it presently. We also have Messrs. Tiffany & Co.'s assurance that the cup will be ready by July 25. The offer:

To the Executive Committee of the  
*Photographers' Association of America.*

DEAR SIR: Desiring to contribute something which will express my interest in photography, and aid to promote the welfare of the art, I beg to ask if the Association, of which you are its esteemed officials, could with propriety accept the custodianship of a Prize Cup of which the enclosed print is a reproduction. The cup is to cost \$250, and is made of silver, from the firm of Tiffany & Co. of New York, and measures eleven inches in height. My original object is fully made clear by the enclosed circular, but owing to the prominent clubs declining to participate (for good reasons), and desiring to carry out my idea of creating a competition which I feel confident would prove interesting and beneficial, I offer this cup to "The Photographers' Association of America," with only the following restrictions: The cup shall be competed for at least every year for ten successive years; the cup shall then become the property of the party winning it the greater number of times. In the event of no party winning it more than once, or a tie being, the successful competitor for each competition may by vote place it to any Photographic Association. In the event of the winner declining or neglecting to vote to then present the cup, it shall become the property of the Association having the largest number of members in the United States.

Yours truly,  
T. M. BLAIR.

*Transportation.*—A first-class ticket (either unlimited or limited) must be purchased to Chicago, for which regular fare will be paid, and upon request the ticket agent will issue a certificate of such purchase.

If through tickets cannot be procured at the starting point, you will purchase to the most convenient point where such through tickets can be obtained, and repurchase through to Chicago, requesting a certificate from the ticket agent at the point where repurchase is made. Tickets for return will be sold by the ticket agent at Chicago at *one-third the lowest regular limited fare.* In case there is no limited fare to the point desired, one-third of the unlimited fare will be used.

Certificates for return tickets will be signed by G. M. Callisle, Treasurer.

It is very important that a certificate be procured, as it will indicate that full fare has been paid to Chicago, and that you are entitled to the reduced fare for returning.

*Second Report of Committee on Transportation.*—We find that a lower rate of fare can be secured if fifty or more will rendezvous at some one point, and purchase their transportation at the same time.

The rate will be *one fare for the round trip.*

It is to be hoped that members will at once interest themselves in locating one of these excursions.

Apply to the undersigned if you will engage in this work, and circulars will be furnished.

GAYTON A. DOUGLASS,  
Committee on Transportation.

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## THE WORLD'S PHOTOGRAPHY FOCUSSED.

OBERNETTER died April 14th at forty-two. He leaves a son aged about twenty years to whom, we hope, he has communicated the secret of his processes, so that his remarkable work may have some one to continue it.—*Moniteur.*

THE MANUFACTURE OF OXYGEN GAS.—Mr. C. Holland has published in the *English Mechanic* a formula for making oxygen gas, now so much used for projections, which, it appears, gives from the same

weight of chlorate of potash a greater quantity of gas whilst at the same time the operation is much shorter. He takes, by weight:

Chlorate of Potash . . .	8 parts.
Oxide of Manganese . . .	2 "
Common Salt . . .	1½ "

The chlorate of potash should be pulverized before mixing the divers substances. The results are much less satisfactory if salt in crystals be used.

It appears from the last report of the French Photographic Society that it is in a very prosperous condition, having a capital of nearly 50,000 francs, \$10,000.

**PRINTING ON TEXTILES.**—The best fabrics for the reproduction of designs are those of fine linen, or the finest cottons, such as nankin, for example. If silk is to be used, light taffetas or soft silks are the best. To albumenize or size the material, it is boiled in water made alkaline by the addition of a little potash; after drying, it is coated with a solution of:

Chlorhydrate of Ammonia . . .	30 grains.
Water . . . . .	8½ ounces.
Whites of Eggs . . . . .	2

Sensitizing is done, for the divers processes as for paper. Exposure and development are the same as for paper, except that for platinotypy the acid solution should be composed of one part of chlorhydric acid and forty-five parts of water. The platinotype Company prepares special solutions for the application of platinotypy to tissues. The prints produced by this process may, according to Mr. Wallace, be washed without injuring the images. The tissues should be sensitized in nonactinic light, or else in gas- or lamplight. A good way consists in spreading the tissue on a very plane glass plate and impregnating it with the sensitive solution by means of a sponge until it is completely saturated. It is now dried by moving it gently before a stove or heater until complete desiccation. The prepared material should not, however, be placed nearer than two feet from the stove or heater, otherwise the sensitive film might be injured. After sensitizing, the tissues should be kept in a dry place.—DR. PHIPSON.

**PHOTO-NEPHOGRAPH.**—Professor Stokes has just constructed an apparatus, the photo-nephograph, which gives graphically the height and velocity of clouds. It has been used with photographic prints of the clouds made at the Observatory at Kew. The manipulation is extremely simple.

At the April meeting of the French Photographic Society, Mr. Richard stated that a cliché becomes weaker in a solution of red prussiate of potash and also in a solution of perchloride of iron, but if a weak cliché is plunged into the above solutions it will become of a greenish blue by the reaction in the gelatine itself and will intensify almost without limit according to the strength of the solution and the perseverance used in passing the cliché from one liquid to the other at several intervals. If the baths are mixed, the reaction, naturally, is obtained at once and there is afterward no action on the cliché. It is, therefore, necessary to drain and even to pass through water to remove the excess of the liquid from the surface of the cliché each time that it is carried from one bath to the other. The greenish tint passes easily to a decided blue by washing with weak ammonia which seems to still further strengthen the cliché, or with pyrogallic acid, etc. It remains to be seen if these tones of the cliché, unfavorable for printing, could not be advantageously modified without weakening again the cliché.

I have not yet been able to push these experiments very far as they only date from yesterday, nor to apply them to clichés developed with pyrogallic acid; it is, however, a well ascertained fact that a cliché developed with iron may be colored a very beautiful blue more or less decided, which may have its utility for reproduction and that a weak cliché may be greatly strengthened by this same blue tint.

At the same meeting Mr. Lecorney made known some observations in regard to the removal of the emulsion film and the possibility of obtaining in this way enlarged or reduced pellicular clichés. He operated with divers commercial plates and found that they did not all act in the same manner.



For example, the plates of Mr. Bernaert may, after developing with oxalate of iron, and when *still wet* by the developer, be separated from the gelatine film by raising this last by a corner and pushing it with the finger. But if the glass has been washed, be it ever so little, the operation is no longer possible. It is understood that after separation, aluming and fixing are done in the ordinary way.

With the plates of Mr. Lumière and those of Mr. Bacard, it is necessary to operate differently. On coming from the iron bath they are placed, without being washed, to dry in a dark room, or, if they are washed, it must be very slightly, because a certain quantity of the iron salt should remain in the film. When dry it suffices to plunge Mr. Lumière's plates into water to separate the film. With those of Mr. Bacard, it is necessary to dampen them and then make the separation with the aid of the finger. As in this case the film folds itself, it is well to previously cover it with an inert powder to prevent adherence. With all plates a strong solution of alum acidulated with citric acid may be used as has

already been recommended; but the operation is much easier if care has been taken to allow the *cliché* to dry before the alum bath. Without a previous drying the detaching is done with great difficulty. When the detached pellicles are to be dilated they become so thin that it is difficult to handle them; this may be obviated by giving them a coating of ordinary gelatine after which they are dried and then submitted to one of the treatments indicated above. The acidulated bath dilates the film and an alkaline bath contracts it, it is, therefore, always easy to arrive at the desired size. Finally, Mr. Lecorney mentions a rather curious fact. It is known that sulphocyanuret of potassium dissolves gelatine with facility; Mr. Lecorney believed that a small quantity of this substance, added to water acidulated with sulphuric acid, would increase the dilatation of the film. To his great surprise the contrary effect was produced; the image was so much contracted that it only had one-third of its original surface. A simple washing destroyed the action of the sulphocyanuret. We have here a new field for experiments.

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## Editor's Table.

MR. GEO. M. MOORE, Seattle, W. T., favors us with an illustrated work on *The Industries of the Queen City of Puget Sound*, wherein Mr. MOORE himself is alluded to in complimentary terms.

MR. A. B. POST and Mr. A. J. CASSEDAY (well known to dry plate users) have opened a splendid studio at Canton, Ohio. *The Evening Repository* gives them a generous send-off. They start right, and we trust they will continue to do well for themselves, the public, and our art.

ITEMS OF INTEREST.—MR. M. H. ALBEE, Marlboro, Mass., sends us pictures of some neat designs for backgrounds for children photographs. Examine them. MR. J. H. EMPSON, Cincinnati, Ohio, desires to purchase a copy of *Hearn's Practical Printer*. Communicate direct with him if you have a second hand copy for sale. MESSRS. CHARLES E. SMITH and Mr. HARRISON have bought the plant of the I. C. DRY PLATE Co., and will hereafter continue the business as the SMITH & HARRISON DRY PLATE Co. With

practical knowledge and plenty of funds, they have every promise of a fine success. More anon. MR. L. G. BIGELOW, Augusta, Ga., expects to surprise the craft soon with a new "diffusion" process, by which a reduction in time both of exposure and of retouching will be secured. There is a chance for almost all of us to win a prize at the Chicago Convention.

AN article on Guatemala, by W. T. BRIGHAM, appears in the June number of *Scribner's Magazine*. It contains a number of illustrations made from photographs taken by the author in his long journeys in that country, which he calls "an uncommercial Republic."

The study of "Some Illustrations of Napoleon and his Times," by JOHN C. ROPES, contains a great many fine portraits and several caricatures, useful as studies in pose and lighting.

MR. C. S. LAWTON, Woonsocket, R. I., has sent us a photograph of a very curious drawing

made by him." The subject is "Universal Representation." The original is 35 x 23 inches. Over one hundred pictures are in the design, including the camera as the emblem of our art. The execution is fine. It is a marvel of patient skill.

Mr. JOHN BROWN, Wheeling, W. Va., has sent us some photographs of the cyclone destruction which occurred at Martin's Ferry, Ohio, April 15 last. They give one an admirable conception of the horrors of the cyclone among houses and trees.

CYCLONE pictures—*i. e.*, instantaneous views of the phenomena as it occurs—will be valuable to scientists. Who will be ready to catch them on the go? If any one does, please let us know.

*The Photographic Times Annual* should be in every studio. The last thousand copies published is now being taken up. Those who have failed to secure a copy should do so. It is a book valuable for reference always, and marvelously cheap.

*Mosaics* is all gone—until 1888.

MR. JOHANNES LUDWIG, Vienna, Austria, has favored us with his illustrated catalogue of accessories and backgrounds. It contains 100 phototypes of designs and groups—a magnificent array, far excelling anything of the kind ever published. Herr LUDWIG should advertise in America.

BURNETT's "Hints on Composition," his "Essay on the Education of the Eye," and his Practical Hints on Light and Shade," are to be reproduced and published in one volume soon. We believe this will be an acceptable work to our craft. Full particulars in our next.

A MAGNIFICENT series of prizes is offered by the EASTMAN DRY PLATE & FILM Co., excelling in generosity all others. See page 348. Owing to the restriction as to frames being removed, any one can compete without going to the great expense involved in framing their pictures. The object is to call out as large an exhibit as possible at a minimum cost to the exhibitor. No doubt the splendid offer will be largely competed for, and each prize taken up.

THE June issue of *The Art Journal* is the "Jubilee" issue, and contains a list of illustra-

tions that must cause a great demand for it from photographers. There are thirteen Victorian fine art pictures, nine of the Victorian statuary, four of the Crown collections of pictures, a grand lot showing Victorian progress in applied design, eight illustrations of the architecture of Queen Victoria's reign, and six views of Balmoral, including Balmoral from the Dee, the approach to the castle, the Queen's sitting-room, the drawing-room, the ball-room, the Prince Consort's room, statue of Malcolm Caenmore. Likewise examples showing art education during the past fifty years, including the arts of peace—fresco by Sir F. LEIGHTON, F.R.A., South Kensington Museum; Lion, British Museum railings; Della Robbia staircase, South Kensington; the ceramic gallery, South Kensington; the south court, South Kensington. The variety for the student here is superb. THE INTERNATIONAL NEWS Co., New York. Price, \$1.00 per copy.

THE EASTMAN DRY PLATE & FILM Co. have favored us with a circular, dated May 20, wherein they state their side of the unfortunate legal contest between the said Company and Messrs. E. & H. T. ANTHONY & Co. The main points—those of most importance to our readers—were stated substantially in our last issue. In addition, the craft is reassured by the EASTMAN Co. in the following terms: "In order to relieve our customers from all anxiety on the score of the ROCHE patent, and the suits threatened thereunder, *we hereby give notice* that we will assume the defence of any such suits if brought, and hold ourselves responsible for any damages which may be recovered therein." Certainly such assurance from such a house makes it easier for some of our readers to decide on what course to pursue.

We have in hand the patent specifications of both the EASTMAN (No. 358,848) and ROCHE (No. 241,070) patents, and, should we feel the necessity, we shall publish them. Meanwhile they can be had from the Patent Office at 25 cents each. We presume there will be no hearing of the case before fall.

A NEED FILLED.—Mr. JOHN WAGNER, 51 Portland St., Boston, has conferred a boon upon the trade by manufacturing his patent machine made developing tray. It is a fine idea. It is all in one piece and thoroughly japanned, so that there is *no such thing as leak* about it. A double ridge or elevation rises from end to end of the bottom to keep the plate from adhering, and to facilitate raising it from the solution.





Sad, Sad News.

CARL VEITZNER,  
TEPLITZ, AUSTRIA.

F. GUTKUNST, PHOTOYPER,  
PHILADELPHIA.

THE  
**Philadelphia Photographer.**

EDITED BY EDWARD L. WILSON.

Vol. XXIV.

JUNE 18, 1887.

No. 300.

**WILSON'S QUARTER CENTURY  
IN PHOTOGRAPHY.**

DEDICATION.—To the veteran photographers who for a quarter of a century have focussed the camera, five hundred of whom I would like to mention by name, and to the younger ones who, with them, are honestly laboring to uphold the most beautiful art-science ever discovered, this book is inscribed, by the author.

PREFACE.—A quarter of a century ago I abandoned the vocation of merchant, to which I had been trained against my will, and entered the establishment of Mr. F. Gutekunst, photographer, as an employé.

With a sort of a there-must-be-hypo-in-the-wash-water look in their faces, many friends advised against such a course, averring that photography was "a circus kind of a business, destined to a short life, and unfit for a gentleman to engage in."

But frequent visits to the studios of some photographic friends had caused me to be fascinated with the art. I believed in it, became an optimist concerning it, engaged in it, and in about a year announced myself as editor in chief of a magazine whose purpose it should be to elevate photography and to do what it could to help those who became devoted to it with me.

This work has gone on ever since. THE PHILADELPHIA PHOTOGRAPHER, like a great journalistic funnel, has received and let through without interruption the generous offerings of our co-workers from all parts of the world.

Much of what they gave has been covered up and forgotten. For the past two years I have been engaged in a process of recovery, selection, filtration, and condensation, the result of which goes out now in the book accompanying this.

It is issued just now as an anniversary offering. If I live to do the same work again, I shall be an old man, and photography will doubtless be able to present us with portraits of the people of other worlds provided it keeps sailing on at its present speed.

I have tried to make *Quarter Century in Photography* useful alike to learner and earner—a book fully up to the times, and helpful for all time.

Where our art has been the weakest, I have endeavored to be the strongest. Where I have been weak, I have called in the words of wiser workers. This plan proved so acceptable in *Wilson's Photographics* that I have ventured to follow it in this work. I send it forth with the hope that it may help maintain the high position our beloved art has attained, and hold up the hands of the noble men and women who are devoted to it, for at least another *Quarter Century*.

EDWARD L. WILSON.

NEW YORK, June 1, 1887.

As will be seen, we have dedicated our new work to the whole craft. We were in real trouble as to how it ought to be done, but trust it will come out as we wish, namely, as a help to our art and the workers in it.

The first money received for it came from Mr. James McKeil, Sibley, Iowa, an employé, we understand. This fact alone argues well for the coming photographer, who is bound to be informed. We have hopes of this gentleman, whoever he may be. He will grow. By "the list of authorities quoted in this volume," we learn that there are 300, besides the author, who speak of what they know. There are 386 engravings in the book, 528 pages, of index 12 pages very carefully prepared, and one more chapter added since our last announcement. The book is an assured success. For further particulars we must refer to the advertisements.

[Translated for *The Philadelphia Photographer.*]

### SPOTTING OUT ARISTO PRINTS.

BY W. CRÖNENBERG.

ARISTO prints can be more readily repaired and retouched than albumen pictures. When the copy is taken off from the glass or the ferrotype plate, the spotting out is undertaken, and for this purpose a very fine retouching pencil is necessary. The same retouching colors are used as in albumen paper. The firm of Liesegang prepares these colors in three different tones, and they are worked in with a little gum and prove themselves excellent. Care must be taken that the brush does not contain too much color, for since the aristo paper is very sensitive to moisture, on account of the gelatine contained in it, too much color would thus make a dark mark and be removed with difficulty. Rubbing with water would only make matters worse, for then a spot without gloss would appear in the picture—in such a case, nothing is left but to wash the picture afresh, remove the color and begin anew.

However, if only a very little color is taken upon the brush, just an atom, then the pointing out can proceed very easily, and so as not to be discernible to the eye. It can even equal a portrait. In good negative retouching, however, the positive retouching will have to consist only in the pointing out.

Care must be taken also to cover the picture with a sheet of paper, for the hand to

rest on. Aristo paper contains gelatine, and this would, by the immediate contact with the warm hand, cause spots.

### PHOTOGRAPH OF THE GREAT NEBULA IN ORION.

A SHORT time ago we received from Prof. C. Piazzi Smyth a photograph of the Astronomical Photographing Equatorial and its dome used by Mr. Isaac Roberts, together with another photograph representing the great nebula of Orion. We were unable to secure a good autoglyph of the former, owing to technical difficulties; but of the latter, the Levytype Co. have made the fine reproduction which appears on the opposite page. Concerning the picture, Prof. Smyth writes as follows:

"A photograph of awful power, representing the great nebula in Orion. Often as that nebula has been photographed by various astronomers, it has always come out, as it is seen by the eye in telescopes, an object of infinite faintness and uncertainty. But by means of the immense light-power of his reflecting telescope, the focal length being only five times the diameter, and that diameter so noble as twenty inches, and adding to all that the accumulating effect of the new dry plates through more than an hour, Mr. Roberts has conferred a substantiality on the nebula of which men never dreamed before; and when we further gather from the spectroscope that all that nebulous region—many millions and millions of miles in breadth, height, and depth—is all in a slow state of gaseous incandescence, or perhaps combustion, the existence of such a region in sidereal space is a wonder almost greater than the existence of the stars themselves, whether with or without planetary worlds about them.

"Yours very truly,

"C. PIAZZI SMYTH."

We are much favored by Prof. Smyth and Mr. Roberts in the opportunities given us to see these bits of the celestial regions, and, above all, to alert photography for securing them. We regret that we cannot also show the splendid instrument employed.



## PERTAINING TO THE



CHICAGO CONVENTION.

*To the Photographic Fraternity :*

Time has carried us swiftly on since our last meeting in St. Louis and will soon bring us together again at the convention in Chicago, which will open on August 9th. To our Association the great event of the year is "The Convention." There we renew old acquaintances and friendships and make new ones, exchange ideas, and show our work. There we go to learn and to teach, to make selections of apparatus and accessories from the thousands of useful articles exhibited by the enterprising stockdealers in their department, and we thus combine both pleasure and profit by spending a few days among friends and fellow laborers and the most beautiful attractions that the art of photography can offer us. All should avail themselves of this opportunity for profit and recreation and to enjoy all the benefits of membership of the Photographers' Association of America. I trust that the craft will turn out strongly, both in numbers and in exhibits of work for our grand Art Department for which the Association, at the late convention in St. Louis, voted the sum of one thousand dollars (out of its own funds) for prizes.

The Executive Committee, at its meeting in January, endeavored to meet all the demands and suggestions of the fraternity as well as those of the photographic journals, and after careful consideration a schedule of prizes was adopted for the more important classes of practical photography—being, one diamond badge (grand prize), seven gold, thirteen silver, and ten bronze medals for home production. One gold and one silver

medal for exhibits from abroad, and one silver medal for the best improvement in photographic apparatus or accessories, produced since the last convention. In order to prevent the carrying off of medals by the same parties who won them last year and to give others a chance, it was resolved that for the coming convention winners of gold medals at the convention of 1886 should be eligible for the grand prize only, and winners of silver medals to be eligible for gold medals and the grand prize only, which latter is open to all members of the Association. By these means, the winners of last year compete in higher classes this year and have an incentive to eclipse their work of last year.

To meet the demands of a majority of our members that photographers of smaller resources, who cannot compete with their more fortunate brethren in the larger cities, should have a chance to win an Association medal, a class was formed for their benefit, for which class ten bronze medals of merit are to be awarded for the best ten collections of twenty-four cabinets each, and in order to reserve these medals for those for whom they were intended it was resolved, that parties competing in this class cannot compete in any other class. The rule was also adopted that all competing exhibits must be without frames or glass so that the merits of the photograph alone will appear, and also more easily to make comparisons in judging for awards.

It is hoped that the work of the Executive Committee will prove satisfactory to the members, and I can only add that we have done only that which we considered to be for the best interest of the Association. Bring with you or send your choicest work, so that you may compare it with that of your friends and learn if there is room for improvement. Come prepared for practical discussions on photographic subjects, contribute your share toward the general fund of knowledge and experience and do not hide your light under a bushel.

Be as much prepared to give the advantage of your experience to your colleagues as you are to receive information from them, as in this manner only can be attained the great object for which our Association was



formed. Our Association, born seven years ago in Chicago, returns to its birth-place full of vigor and strength, with the best prospects for permanency, it now being an incorporated society. Come and enroll yourself in the ranks of our grand army which has inscribed on its banner, "The Progress of Photography," help to fight our battles for improvement in every direction, be in the front rank at all times and do not lag in the rear. Use the short time left for preparing and when the time comes, come one, come all.

Fraternally yours,

G. CRAMER, *President.*

### SOME MORE REASONS FOR OPTIMISM.

BY D. BACHRACH, JR.

FIRST, let us give expression to the lamentations of the honest but blind pessimist, and the specious reasoning of the "Cheap Johns," only too anxious for a valid excuse for introducing low prices. The line has been pretty well followed in the article by Mr. Hull, alluded to in my former communication. First, according to him, photography has become more of a "commercial" business, whatever that may mean. Second, in mercantile pursuits the big fish are swallowing up the little ones; huge establishments with large capital, large plants, and large forces can discount the smaller ones, can sell cheaper, and in fact, the time is not far distant when it will be impossible for the small business man to compete with the huge bazaars under one management.

This second proposition is granted. The man who buys and sells twenty thousand dollars worth of goods in a month, can and will get larger discounts than the man who buys one-tenth that amount; and if he starts with a surplus cash capital to make his cash discounts (which are from one to five per cent., according to kind of goods), the man with limited capital has no show whatever, if brought into close competition. Besides, a clerical force that sells one thousand dollars worth of goods per day, ordinarily, can sell double that amount in busy seasons without additional expense. Hence,

as Mr. Hull says, the few large jobbers are displacing the many small ones. But here his common sense stops and the absurdity begins. I want Mr. Hull to show me how a man with a large studio, large force, large rent, and large plant, can make acceptable work cheaper, or please patrons more than a good photographer with a small plant and smaller expense next door to him. It is evident that such writers have never practically conducted large studios. Our studio has fourteen employés (besides the proprietors), and I think I can write from practical experience, having started with *myself and a boy.*

Suppose we take a studio that undertakes to furnish *fair* technical work (no other will go down with the public for any length of time) at \$1.50 per dozen for cabinet photographs, the lowest price, I believe, that any large "Cheap John" establishment has been able to maintain for any length of time. We will suppose that their product averages thirty dozen cabinets (or its equivalent in work) per day, which is pretty good for even a large city. The proprietor will have his hands pretty full to superintend his various departments and assist in the skylight. His printer must be capable, with at least one competent assistant. Two, or even three retouchers: two to mount, spot out, and burnish; one in the reception room to wait on patrons: one porter, and an errand boy. And if these are not competent people they will spoil more material than the difference in salaries, and, in addition, the patronage will, if cheap help is adhered to, surely go to "the other man," as it has in every case that has come under my observation. Then let him add rent \$2000 per annum, advertising expenses (for that is absolutely necessary with such concerns), at least one-fourth the gross amount of receipts for cost of materials, and then count up what, under these circumstances, a dozen cabinets will cost.

Now let us see the "other man" who starts next door on a small scale. We will suppose he has some merit, in fact, no one could succeed in our business without having it himself or employing and paying for it. In the very start the simile of the jobbing trade is of no account. The small

jobber and large one each sell precisely the same goods, in fact the money buys them, no matter who has it. Now, Mr. Dick Windbag, proprietor of the Monumental Humbug Photographic Co., can't deliver the same goods as Mr. Backbone next door to him, because no two men have the same style, the same ideas, or the same methods, etc., and some will prefer the work of one and some the other. *The same goods can't be delivered by both.*

We will suppose that the "other man" starts with a small studio at \$600 rent, one general assistant, and a boy. By dint of personal push and friends who know his merit, on a modest estimate, within, say, six months, his patronage averages ten dozen cabinets per day at \$1.50 per dozen. Now, I say it is easier (and it is capable of proof) for one good photographer with one good assistant and a boy, to make ten dozen cabinets per day, and deliver good work, than for the other establishment to deliver thirty dozen per day. But more than this. In the former case, the man, by his personal attention to the work in many of its stages, will give it a quality and individuality which the other cannot possess; he comes into more intimate contact and better acquaintance with his patrons, and, if he attends to his business right, will either be moving into larger quarters soon, or be able to obtain more money for his more artistic work, whichever he may choose. I have seen both processes gone through in this very city, and against a man with large capital, who worked like a dog himself, and compelled his poorly paid employes to do likewise; and yet was beaten in the long run by a dozen of the "other men." I need hardly go into calculations or figures in this article. Let anyone take the above basis and calculate results, and he cannot fail to see that it is correct and in accordance with every-day experience. And please, also, bear in mind fellow-craftsmen, that a thousand dollars investment is all that a competent photographer needs at a start.

I had almost forgotten another fact in the *reductio ad absurdum* of the jobbing-house argument. While a clerical force that sells, say, ten thousand dollars per month could

also sell fifteen thousand, how would it be with a photographic force that makes regularly one thousand dollars worth of work per month, if the business increased to fifteen hundred dollars in the same length of time? With my experience, I will say they would get sadly left, either in quantity or quality, unless the force was proportionately increased, that is, if they had not more force than necessary at the start—not likely to be the case very often.

Of course, it is sad that studios that had obtained six and eight dollars per dozen for cabinets formerly, receive only three, four, or five dollars at most. But so have the cheap men gone down proportionately. And still, the better men, as a rule, remain on top, and the "Original Cheap Johns" who temporarily fattened on the rush of cheap work introduced by them, gradually sink down again to their natural level. The public taste is also gradually and surely being cultivated, and patrons naturally will seek those who can satisfy their desires.

But the greatest satisfaction to be drawn from these facts is that if we are true to ourselves we cannot be swallowed up by huge places with large capital and by men with still larger cheek. By all means keep your name prominently before the public with your work. Let it be the individual not the establishment, in our profession, and our business cannot then be taken from us, except by superior merit; and that is not "Cheap Johnism." And it will be found that in every locality that has been cursed with this bane, the cause has been some pariah, some black sheep that has started it to "scoop in" his neighbors before they woke up to the game, and the cause has not been "in the tendency of the times." I know this positively to have been so in Baltimore, Washington, and Richmond, and probably so everywhere.

And now in conclusion, I think that this retrospect of the condition of affairs will justify some of the optimism which I feel in looking toward the future of photographic portraiture.

Having, I think, demonstrated that individual enterprise with small capital can successfully compete, in our profession, with large establishments at cheap prices, it needs

but few words to demonstrate how this fact, once thoroughly understood by photographers, will finally tend to an advance of prices, and in a future article I will try to outline the matter from actual observation.

(To be continued)

## HINTS ON COMPOSITION AND SELECTION OF SUBJECT.\*

BY XANTHUS SMITH.

AN important element of success in the pursuit of landscape photography is the attainment of the power of selection. Those persons who are naturally gifted with that kind of taste which enables them at once to perceive those combinations and effects in nature which will make the most agreeable or effective picture are indeed fortunate; and, although they may receive much gratification and instruction from looking at the works of eminent artists, and seeing under what effects they have treated the various scenes represented by them, such study is not so much a matter of necessity with them as with those who have been less favorably endowed. Sir Joshua Reynolds says, "Nothing is denied to well-directed labor; nothing is to be obtained without it." So that none of us need despair of attaining excellence, if we do but give our earnest attention to our pursuit. Hundreds of views are constantly being made that are of no account whatever, except inasmuch as they may be portraits of places possessing interesting associations to those who are taking them. As we see in show cases innumerable faces admirably done, and each one highly interesting to self and friends, but passed over with the utmost indifference by everybody else. When the object becomes the making of a picture, the producing of a work which, from its possessing certain intrinsic qualities giving it a wider interest, and making it as a work of art, more or less, it is necessary that we discriminate between the beautiful and the commonplace in nature. It will not, then, do to set our camera up in the first country road that we come to, and focus straight along it, being satisfied with

its parallel sides, lined with stiff fencing, and rows of straight-hemmed cedar trees. We must go further, and see if we cannot find a spot where nature will spread before us some of her unfettered charms. Trees remarkable either for the lightness and grace which characterize some varieties, the fulness which marks others in the vigor of maturity, or for the picturesque ruggedness of decay. Some sheet of water, even though it be not river or lake, where we will get mirrored reflections, sparkling lights, and flat, quiet masses of shadow. If we can get a mountain peep in the distance, how fortunate! If not, perhaps we may find a rolling country, dotted with receding masses or groups of fine foliage. And our foreground. Let us, if possible, secure some variety in it. Bare earth, varied by patches of vegetation—rocks, stumps, and old logs—rather than flat, unbroken stretches of either grass or earth.

Having arrived at a point where we have found some elements of a good picture, let us so compose them, by moving from point to point, that we get our distance open and our main groups on either side. But let the group of one side be more important, if possible, than that of the other. There is nothing which makes a more picturesque contrast than a fine, full mass of foliage balancing some quaint, denuded stem, festooned with vines. Our foreground should have some important feature of interest—either suitable figures, cattle, or something of striking form, or light and dark, and not precisely in the centre, but generally a little either to one side or the other. It is seldom that such points can be put down in the extreme corners with good effect, as they carry the eye out too far from the centre of the work.

Although the plan of composition is occasionally tried by landscape painters of placing the principal group of trees in the centre of the work, it is seldom successful, the open spaces of distance, seen upon either side, equally arresting the attention, and so dividing it that the work is robbed of that unity of impression which should go toward making it agreeable.

There is at the present time a prevailing want of interest in, and sympathy with, the

\* Read before the Philadelphia Amateur Photographic Club, April 18, 1887.

good art principles seen in the works of the eminent landscape painters who were living and working during the first half of this century, and it is chiefly the outcome of Ruskin's pre-Raphaelite movement. This school and their adherents strove to attain certain sentimental qualities which scarcely belonged to the province of art to convey; and the only art quality which they perfected was that of imitation, which is considered the lowest quality of art; and, as genuine pre-Raphaelism was dying out, the great period of scientific investigation set in, turning the minds of reading and thinking people in the direction of materialism and research, and the consequence is that now a picture is not valued as a piece of beautiful coloring, or composition, or effect, as it was formerly, but it must tell some story, or be a wonderful piece of imitation of something, it matters not much what. Many pictures that are painted now have so little true art in them, and are so solely dependent upon the incident they represent for their aim, that a simple pen-sketch would fulfil their purpose just as well as the painting. I think this is somewhat to be regretted, and I hope that a taste may grow up again more in sympathy with true art. Turner and Stanfield, and the many good landscape painters who were working contemporarily with them, seldom, if ever, dealt with nature in her commonplaceness. They sought her out in the picturesqueness and the beautiful, and did not scruple to gather together what was near and characteristic to a neighborhood to enrich and beautify their compositions. They delighted in the effects of storm and cloud and sunshine which give grandeur and poetry to a scene, and I was going on to speak of their coloring, but this we have nothing to do with. Gentlemen, when we can fix the image as seen on the focussing screen, coloring included, as we do the light and dark alone, the painter's occupation will, indeed, be gone.

As we must confine ourselves exclusively to composition and effect, let us consider a few of the first principles to be looked after in the successful getting up of a picture. Working, or rather presenting, as we do, our subjects upon a flat surface, every artifice should be used to overcome this per-

pendicularness of plane, and have the effect of leading the eye into the picture. Judicious composition and a proper amount of atmosphere are great aids in the retiring of distant objects and the advancing of nearer ones. A picture in which a number of conspicuous objects come one over another, or successively one under another, must appear flat, and especially if the objects just touch or cut upon one another; and it must to a great extent be by the lightening of shades that we get a distance to recede into the picture. In a landscape reproduction where our shadows are as black in objects miles off as they are in the immediate foreground, claiming an equal attention, we can get no retirement; and by cutting definitely and harshly against the sky in every part, a disagreeable hardness is given to the picture. As a means of obviating this hardness, in addition to working during a prevalence of atmosphere or haze, I would recommend, whenever possible, the introduction of skies, either by painting in or by washing on the back of the negative with a little opaque. When the sky in the negative is not too dense, the latter plan will answer very well, and the addition of a sky to a landscape view is of immense value, not only on account of breaking up the flat, blank space, but it may be made the means of completing the composition of the work, and it also serves to carry off the distant feature gradually, and repeats the dark tints of the foreground. There are, however, two conditions when skies are better left out: the one when they are got by laying cotton indiscriminately, and the other when printed in from negatives that are too strong and too bold in their masses, and either overpower the subject of the picture completely, or else divide the attention too much with it, and thereby rob it of its precedence.

Where amateurs have the time to devote, and are anxious to make agreeable pictures, much advantage would be gained by following the plan of landscape painters; namely, when they have found a good subject in nature, to study it under different effects of light and shadow, noting and comparing. I have occasionally made a sketch of a scene, thinking the effect admirable at the

time I commenced it, and found, after working an hour or so, that it improved immensely; or perhaps, seeing it a month later in the season, when the sun had got further around in her course and higher in the heavens, its charms were still further added to. This is especially apt to be the case in wood and dell scenes, where a stream of sunlight pouring in upon a mass of rocks, vines, or mossy bank or shingle, will bring out a foreground and immensely enhance the beauty of such a picture.

The interest and completeness of landscape photographs would generally be greatly added to if suitable groups of figures or cattle could be secured in them. The difficulties attendant upon the attainment of this I know are very great, and yet, like many other things which are difficult to attain, the accomplishment is the more credit to the successful aspirant. Extended landscape views, and views taken among grand mountain scenery, may very well be without people or domestic animals, as they would generally interfere with the quiet repose or lonely grandeur of the scene, and they would, at any rate, necessarily be diminutive. But in that kind of landscape work which is best adapted to the powers of photography, namely, little domestic scenes and picturesque rural bits; figures are almost indispensable, not only from the additional interest which life gives to the scene, and its appropriateness, but on account of the opportunity afforded of getting spots of high light and deep shadow, generally brighter and deeper than any in the picture, and giving by contrast the proper relative values to all the other tones. Such touches are invaluable as a means of clearing up a picture, as artists call it—that is, giving brilliancy to it. The chances are so rare in the case of the people, of finding them when wanted, or should they be present of securing their services, that I think it would be well worth the trying for a party setting off for landscape work to take their models with them. Let them get a good stout chunk of a girl and boy, well grown, and a smaller child, and clothe them in light and dark, not the same from head to foot, and provide them with basket, or bundle and stick. In water scenes they will

make admirable groups with a boat; and in posing them, do not get them too near, so that they swallow up the picture, or so far off that they vanish into utter insignificance. If your view is at all valuable as a picture, keep the figures subordinate to it, though pictures in which the figure groups play equal part, and divide the attention equally with surrounding scene, are not apt to be successful. Break up your large blank space in the foreground; or, if you have not such for your group, pose them so as to balance or complete the composition of the other principal features of the work. It is almost impossible to manage a single figure—it is only a spot if seated, or a post if standing. But with three, by keeping two near together and one a little off, you can arrange many agreeable groups. With cows or cattle generally you must take your chance. It is impossible to try to arrange them, as they become frightened and scatter. Wait patiently for an hour or two, and the chances are that, while grazing or resting, they will once or twice fall into good composition with the scene.

In conclusion, I will say that many will consider the pursuit of landscape photography not worth so much care and consideration; they may feel that in taxing themselves in this way they are robbing themselves of the mere sport that is to be derived from an outing, but I know there are others who would consider themselves much better compensated at the end of the season in having secured a dozen complete and beautiful pictures than if they had made some fifty indiscriminate views.

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### QUESTIONS TO THE CRAFT.

IN order to diffuse information of value to many of our readers who are continually inquiring—those who have not the advantages of conventions, or even contact with other photographers, once more we propose the questions which follow to our more privileged readers, and ask a generous response to them, for publication, for the sake of the real good which such action will accomplish:

1. Are you making large portraits direct in the camera, *i. e.*, using a larger lens than

14 x 17, with large dry plates? If so, what is your method of lighting and manipulation, and your experience as to the quality of your results compared with enlargements from small negatives?

2. Do you obtain as satisfactory results, in portraiture, with very rapid plates, as you do with slower ones?

3. What is your most successful method of development of rapidly exposed plates?

4. Have you found an increase of business and profit with the increased facilities for making large work more expeditiously adopted by you?

5. What has been your experience, both in practical results and in the acceptance by the public, of bromide enlargements?

6. What with platinotype prints?

7. Do they increase the revenue from your stock of negatives?

8. Please detail some of your experiences in making pictures of children.

9. In printing dry-plate negatives wherein does your treatment of them vary from your practice with wet plates?

10. What variations do you make in your manipulations in cold weather from your practice in the mild seasons?

11. What are the prospects for the coming year?

EDWARD L. WILSON,  
853 Broadway, New York.

*Answers.*

IN reply to your request for answers to the questions under the head of "Questions to the Craft," I enclose the following:

1. Yes, I am making portraits direct from 14 x 17 down, and think they are more satisfactory to the customers than enlargements made from smaller negatives. My method for lighting is very much the same as with the old collodion plate. I do not use a retarding agent, but vary the soda and pyro according to time and light, using less pyro for detail, and greater quantity for intensity, and find that by close attention to exposure, I rarely, if ever, fail to get a good negative.

2. Yes. The advantages in very rapid plates are invaluable, as you are able to catch the most fleeting expression, when a slower plate would be sure to fail.

3. My most successful method of develop-

ment in rapid exposures is by the soda and pyro formulæ.

4. Yes. I find it pays to spend a little money when such expenditure affects the facilities for large work. I read the photographic journals, and keep posted with the times.

5. Have had no experience with bromide enlargements.

6. Have not had much experience with platinum prints, save those used for crayon work; these I find add some profit to my business.

7. Yes. My stock of negatives has been a good paying investment.

Children, did you say? Bless their little sparkling eyes! This part of the gallery-work is now a pleasure to me. I generally study the child from the time it enters the operating-room until it is ready for the chair. After having the camera set, and chair ready, I seek to amuse the "little one." There are dozens of ways to do this, in fact too numerous to mention, and need only be applied to suit the patient to bring about success. I find if you have ingratiated yourself properly, a toy of some kind will prove a boon. I keep a stock on hand. I find a singing canary about as successful as one could wish, and with a proper use of the above there is no such word as fail in my dictionary.

9. My treatment in printing with dry plates does not differ from that of wet plates, using paper bath the same strength for both.

10. My manipulations during cold weather and those with the milder season, differ. In cold weather I make all solutions stronger, and increase exposure a little. In toning prints I use sal. soda bath, and have my arrangements for keeping bath at a uniform temperature. This toning-bath I mix an hour or so before using, and use fresh solution at every toning.

11. Prospects for the coming season are good, and with increased facilities I will be able to do more work with less labor.

Very respectfully yours,

T. B. CLARK.

INDIANA, PA.

I have been a silent reader of your excellent magazine for the past few months, and

so because the opening of my new studio and the study and care getting things to suit me, have consumed all my time and thought. I want now to answer a few of the questions to the craft on page 298.

1st. You ask concerning large work. I would say, I am working from 25 x 30 down direct. I have found the following the rule generally:

The lighting must be soft with much care in the balancing, half light and shade; too much shadow is disastrous to a large head photograph when the same amount might look all right on an 8 x 10 or cabinet head. Get the light well diffused, give plenty of time, and be sure to develop slow. I commence with soda, half strength, and add as required. The results as compared with my enlargements are far superior in delicacy, transparency, and naturalistic effect.

I obtain far better results with rapid plates than slow ones, for this reason: Most slow plates give hard results as compared to quick ones, properly managed, and yet if you want a thick negative you can get it with a quick plate by carrying the development further, and it will have more detail than the slower plate; this, in my opinion, is a decided advantage. My method is as above stated, to add the required amount of pyro to about twelve to fifteen grains of soda solution, add gradually till proper point is reached; if it is overtimed the developer, as it is first made, will carry it generally without bromides; if it needs the additional amount it is not injured by being added in this way.

In regard to bromide enlargements, I will say, many people are suspicious of them, but if I work one up in ink or colors and say nothing as to what it is, I get my price for it, as any other job of work, and they have always given entire satisfaction; used raw as they are first made I do not like them, nor do my customers.

The main feature I practise with children is to spend a moment getting acquainted with a child or even a tiny baby; get *their* confidence and you have got their parents' *money*.

Good dry plates properly handled print about the same as wet plates.

A stove in winter and ice daily in summer for the dark-room, are worth ten times their

cost. For those in southern climates I would say, in summer be careful to keep your developer cool; set bottles containing alkaline solutions for development, in a pail of water with a piece of ice; and after developing wash a negative a short time and then dry, then the plate will stand washing again with less liability to be frilled by the warm water. Also, time a little less in summer and more in winter on the same plate with same formulæ.

M. L. CORMANY.

DULUTH, MINN., May 29, 1887.

## PRACTICAL LITHOGRAPHY IN HALF-TONE.

DESCRIPTION OF HUSBAND'S PYPYRO-TINT PROCESS. — This process has been named papyrotint, being a modification of Captain Abney's improved method of photolithography, named papyrotype. It is specially adapted for the reproduction of subjects in half-tone, such as architectural drawings in monochrome, or subjects from nature, and it is inexpensive. Its advantages over other methods of half-tone photolithography are, that a transfer can be taken in greasy ink, for transfer to stone or zinc, *direct* from any negative, however large, without the aid of a medium, the grain or reticulation being obtained simply by a chemical change. The transfer paper being in direct contact with the negative, the resulting prints are sharper than by those processes where interposed media are used; whilst the same negative will answer either for a silver print, platinotype, or a transfer for zinc or stone. The advantage of being able to use a non-reversed negative is very great, now that gelatine plates have so largely superseded those made with collodion.

The method of manipulation is as follows: Any good surfaced paper is floated on a bath composed of

Gelatine (Nelson's flake) . . . . .	8 ounces.
Glycerine . . . . .	1½ "
Chloride of Sodium (common salt) . . . . .	2 "
Water . . . . .	50 "

Great care should be taken that the solution is not overheated, and that the paper is

coated without bubbles. It is then dried in a temperature of 60° Fahr. The paper will take about ten hours to dry, and in this state will keep for years. When required for use, it should be sensitized by floating, or immersing, in a bath of

Bichromate of Potash . . . . .	1 ounce.
Chloride of Sodium . . . . .	½ "
Ferrieyanide of Potassium	100 grains.
Water . . . . .	30 ounces.

This need not be done in the dark room, as the solution is not sensitive to light.

The paper, after sensitizing, is dried in a temperature of 70°, and in a dark room. When dry, it is exposed under any half-tone negative, in the ordinary printing-frame. It is preferable to print in sunlight, and, for negatives, of medium density, an exposure of three minutes is required; but the exposure will vary according to the density of the negative. The correct time of exposure can best be judged by looking at the print in the frame. When the image appears on the transfer paper of a dark fawn color, on a yellow ground, the transfer is sufficiently printed. It is put into a bath of cold water for about ten minutes, until the soluble gelatine has taken up its full quantity of water; then taken out, placed on a flat piece of stone, glass, or zinc-plate, and the surface dried with blotting paper.

The action of the light has been to render the parts to which it has penetrated through the negative partly insoluble, and, at the same time, granulated. A hard transfer ink is now used, composed of

White Virgin Wax . . . . .	½ ounce.
Stearine . . . . .	½ "
Common Resin . . . . .	½ "

These are melted together in a crucible over a small gas jet, and to them are added 4 oz. of chalk printing ink, and the mixture reduced to the consistency of cream with spirits of turpentine. A soft sponge is saturated with this mixture, and rubbed gently over the exposed paper (in this stage the nature of the grain can be best seen). An ordinary leather-press roller, charged with a little ink from the inking slab, is then passed over the transfer, causing the ink to adhere firmly to the parts affected by the light, and removing it from the parts

unacted upon. It will be found that with practice, rolling slowly and carefully as a letter-press printer would his form, the ink will be removed by the roller according to the action that has taken place by light, leaving the shadows fully charged with ink, and the high lights almost clear, the result being a grained transfer in greasy ink. The transfer is next put into a weak bath of tannin and bichromate of potash for a few minutes, and when taken out the surplus solution should be carefully dried off between clean sheets of blotting paper. The transfer is hung up to dry, and, when thoroughly dry, the whole of the still sensitive surface should be exposed to light for about two minutes. A weak solution of oxalic acid should be used for damping the transfer (about 1 in 100), and this should be applied to the back of the transfer with a soft sponge. After this has been dampened about four times, it should be carefully put between clean sheets of blotting paper, and the surplus moisture removed. A cold polished stone is then set in the press, and after everything is ready the transfer is placed on the stone and pulled through twice. The stone or scraper is then reversed, and the transfer is again twice pulled through. A moderate pressure and a hard backing sheet should be used, care being taken not to increase the pressure after the first pull through. The transfer is taken from the stone without damping, when it will be found that the ink has left the paper clean. Gum up the stone in the usual way, but, if possible, let the transfer remain a few hours before rolling up. Do not wash it out with turpentine, and use middle varnish to thin down the ink.

It should have been mentioned that varying degrees of fineness of grain can be given to the transfer by adding a little more ferrieyanide of potassium in the sensitizing solution, and drying the transfer paper at a higher temperature, or by heating the paper a little before exposure, or by adding a little hot water to the cold water bath, after the transfer has been fully exposed; the higher the temperature of the water the coarser the grain will be. The finer grain is best suited to negatives from nature, when a considerable amount of detail has to be shown.



The coarse grain is best for subjects in monochrome, or large negatives from nature, of architecture, etc., where the detail is not so small. Even from the finer grain several hundred copies can be pulled, as many as 1200 having been pulled from a single transfer, and this one would have produced a great many more if required.—*Archiv.*

### THE PROGRESS OF ASTRONOMICAL PHOTOGRAPHY.

In the *Annuaire*, for the present year, published by the Bureau des Longitudes, is an important article by Admiral Mouchez, the Director of the Paris Observatory. It is really a history of the various applications of photography used by astronomers up to the present time, and is very well done. The article contains many details relative to the work which has recently been going on in the Paris Observatory, which we think will be read with very general interest.

In the new instruments which the Brothers Henry have recently constructed at the Observatory, before a plate is taken the telescope is pointed approximately to a bright star, which is examined with an ordinary eye-piece, armed with a blue glass. In this way a slide can be placed very near the chemical focus, but in order to determine the focus exactly, an image of a star is made to run six or seven times along a very small plate at different marked distances inside and outside the focal point, as previously determined. An inspection by a magnifying glass of the different trails left by the star on the negative shows which was the most exact chemical focus employed to produce them. This when once done really needs no repetition, but, as a matter of fact, the operation is repeated once a month.

Another point which the Brothers Henry have already settled is, that in the case of very many photographic plates of extreme sensitiveness the plates are practically useless unless they are prepared almost immediately before they are required, so that, as a matter of fact, very sensitive plates are now avoided.

Another limit to the sensitiveness which

can be utilized is the diffused light proceeding from the atmosphere, either from the gas of a large town, as in Paris, or from the presence of the moon. Very sensitive plates are liable to be fogged even by diffused light in the case of very long exposures.

We have before referred to the arrangements employed for enabling the images of stars to be differentiated from any accidental spots or dots on the plate. The plate is practically exposed three times to the region of the heavens, with such a small variation of position, however, that the three images of the star on the plate appear as one to an observer who looks at it casually, and a magnifying glass is really necessary to discover the triple nature of the image. This method of working has been found to have advantages which were not anticipated in the first instance; thus, for the same total time of exposure the images of much more feeble stars are recorded with the three successive exposures than with one alone. This arises from the fact that the stars of the lower magnitudes, only being represented by very small points from  $\frac{1}{30}$  to  $\frac{1}{40}$  of a millimetre in diameter, would escape all observation by the naked eye, and would not be visible at all on paper copies; while the three exposures give a larger image visible to the naked eye, and perceptible on a paper positive. Moreover, if a small planet be included in the region photographed, the deformation of the small triangle would instantly betray its presence, even with an exposure of a quarter of an hour. Admiral Mouchez has calculated that a planet at twice the distance of Neptune would be easily recognized in three successive exposures of an hour each,—the motion of Neptune in half an hour quite destroying the triangle which it, like the stars, would make were it at rest.

The real and serious objection to the triple exposure is the wonderful patience and skill that are required to keep the instrument for three consecutive hours, without a moment's relapse, pointed rigorously toward the same spot in the sky. This is very trying work, and apt to overstrain those who perform it. Admiral Mouchez is alive to the fact that the way to obviate this difficulty is to increase the aperture of the object-glass, and

this is what probably will be done before very long.

Some very interesting information is given regarding the microscopical appearances of the images of the stars seen on the negatives: "The microscopical study of the negative presents, moreover, much interest from many points of view, and the appearances of the images of the stars is so characteristic that it is impossible to confound them with accidental spots, as has been generally supposed; were this point of view alone regarded, it would perhaps be useless to multiply the exposures of the same plate. The stars appear on the plate, in fact, not under the simple form of a round spot of uniform black tint diminishing and becoming clearer as the star gets smaller, but as a mass of small round black points, very close together toward the centre for stars of the ten or twelve larger magnitude, and more and more sprinkled, still retaining their blackness, for the fainter stars; and at the extreme limit, beyond those stars which give a definite and certain image, there still appear on the negatives some small groups of little points scattered sparsely, but evidently recording still fainter stars, the existence of which can only be suspected without any means of further confirmation.

Unfortunately, whatever progress we may make in optics or in photography, whatever penetrating and sensitive power we may hope to give to our instruments, it is evident that we shall never succeed in seeing the most distant stars, and that at whatever limit we may arrive, there will always be beyond it an infinity of others lost in the profundity of the heavens which will always escape our knowledge, but it is by photography and the scientific study of the negatives that we shall be able to go further than by any other means. From a chemical point of view also the microscopical examination of the stellar images will not be without interest, because it will help us to understand how the light acts upon the molecules of the insoluble salts of silver which are contained in the stratum of organic material which forms the sensitized plate. It is not, as we have already stated, in giving a uniform tint, more or less decided, according to the magnitude of the star, over the whole image,

but really in decomposing a greater or less number of particles of salts of silver over this area, that the light works; so that we can define the image of a very feeble star as a resolvable nebula, and the others as irresolvable nebulae surrounded by a resolvable portion. We have never seen around any of these images the rings referred to by several astronomers, which have the appearance of diffraction rings seen in telescopes.

To establish the relationship between the scales of the optic and the photographic magnitude of the stars, Bond has made a series of interesting experiments by varying the time of exposure and the aperture of the object-glass. These experiments have led him to an interesting result on the mode of action of light. He has found that a certain time elapsed before the action manifested itself at all, and then that it did so suddenly, ten or a dozen molecules of salts of silver in each superficial second of arc being attacked by the light; after this the number increased very rapidly according to the time of exposure. This mode of action seemed to him obscure and difficult to explain. But it seems to follow from these facts, and from examination of our negatives, that in the manufacture of the bromide of silver, and the preparation of sensitive plates, it is of the highest importance to obtain the finest possible pulverization of the salt.—*Nature*.

[Translated for *The Philadelphia Photographer*.]

### RETOUCHING LARGE HEADS.

PHOTOGRAPHY has made great advance of late years. The introduction of very sensitive plates, and the use of correctly drawn objectives rendered possible thereby, have contributed largely to the perfection of the technique of our art; notwithstanding that these improvements are equally important for all purposes of photography, they have been utilized only by a few operators in the portrait department. Only a limited number of competent practitioners can lay claim to superior productions in the province of artistic photography, although in general, a pleasing strife after better things is apparent. The production of an artistically good photograph, which shall

stand against a critical or assuming public, requires taste in the arrangement, and intelligent judgment concerning exposure, as regards the technical part of the work. Besides all these requisites for a good photographic portrait, a certain measure of hand work is decidedly necessary, particularly in the large heads taken directly. One of the most important tasks of the retoucher is the preservation of the general character of the face; all details must be present in the finished picture, without deep and severe shades, and without chalky lights. Bright clothing and the glaring illuminated parts of the face, show in a properly, not over-developed negative—the details or gradations of tone, and this must remain so. The retoucher should make changes or improvements in the negative where such are really necessary; but in no case should he overstep this and misuse the pencil, if he does not wish to make the picture worthless.

In order to render the artistic work easy for the retoucher, the operator should finish a very large head upon a thin glass plate. Then if the negative is flowed with thin varnish, the retouching is made easy. Lead pencils of different grades of hardness are required to produce the different shadings, and it is frequently necessary to have recourse to the sponge and to pulverized graphite in order to equalize large surfaces and to preserve the harmony of the picture. Wrinkles, deep lines, the pores of the skin, and accidental mistakes, can be softened without destroying the general effect; lights and shadows must preserve their proper proportions. The fact that large heads are not generally viewed very closely, gives certain artistic licenses to the retoucher. If the retouching is only done on the layer-side of the negative, it often happens that whole parts of the face are worked in, so that all the details are lost, and nothing remains but staring smoothness without any curving off, though the negative may have been well-executed. Careless retouching results in the loss of time, rest, and possibly a good negative.

The portrait painter obtains flesh effects by means of colors, which the photographer cannot use, and since our portraits only consist of black and white, with the passing

over of plastic tone gradations, all faults that may happen to be present in the negative, and any dark shades caused by prominent parts, can only be removed by the pencil of the retoucher. The positive copy on paper must be handled with equal care. Mechanical faults can be remedied—high lights toned down. The positive retoucher must by no means be harsh or indelicate.

A well arranged and skilfully illuminated head can become (if the plate is handled right, technically) an artistic work when finished.

In consideration of the growing endeavor everywhere, to produce for the public, photos which, besides other excellences, shall possess artistic value, it is well seen that every hint which serves this end, finds a good reception with striving photographers as well as with scientific retouchers.

—E. F. in *Photog. Archiv*.

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### THE WORLD'S PHOTOGRAPHY FOCUSSED.

THE London Camera Club held a "Smoking Concert" in April. Amateur theatricals, elocution, and song were sandwiched with the smoke. Mr. T. Bolas, the talented editor of the *Photographic News*, read a valuable paper before the Club, April 21, on Photographic Processes for book illustration. We wish he had communicated a real workable process of photo-engraving clipped of all secrecy.

THE Astronomical Conference at Paris has appointed its committees, and will shortly announce its plan of operations. Some of the world's leading observatories cannot take part for want of funds.

THE *May Camera* contains a fine autograph of the instrument used for mapping the heavens at the Cape Observatory with two others from star negatives. The Camera also contains a strong, full-page autograph of *Wagner*, and others, of the reception-room and studio of Mr. P. H. Rose, Providence, R. I.

NEWMAN'S *Manual of Harmonious Coloring*, republished by the publisher of this

magazine in 1865, has just reached its fourteenth edition in London. Gihon's Colorist's Guide is far more practical, more modern, and to the point, because written by one who was not only an excellent painter, but a first-class photographer.

THE out-door worker will handle fewer "lightning" plates this year than ever, having learned that, under favorable circumstances, "snap-shots" can be got on "un-snap plates."

AT a late meeting of the French Photographic Society, M. Chardon read a communication on the value of Eastman's paper for amateurs and others.

M. Nadar exhibited some fine enlargements on the Eastman paper, one of which was two yards high. One of the astronomical conference was three feet by two, and was enlarged from a half plate negative. Photography was represented at the astronomical conference by Professor Eder, Herr Steinheil, the Henry Brothers, and Messrs. Common, of England; Lohse, of Germany; Dunet, of Sweden; Gill, of Capetown; and Hasselberg, of Russia.

M. Nadar circulated prints from his negatives of the scientists on Eastman's paper one hour after the exposure of the plate.

SOWING A CROP OF LIBEL SUITS.—A Winnipeg photographer has put himself in a way to have a fine lot of libel suits. He recently exhibited a case full of photographs of his debtors, each being labelled with the name, address, and indebtedness of the person represented.

AT one of the last meetings of the Glasgow Photographic Association, Mr. W. Lang read a long dissertation on illustrating books by means of silver prints, and he mentioned a great number of volumes in which this process has been used for about forty years. (See page 324.)

At the London Camera Club, Mr. T. Bolas took up the same subject; but here the author had for his object the explanation of divers photographic processes used for illustrating books and journals. In his opinion, the Pretch process, invented

twenty-nine years ago, has not been excelled; he also made allusion to the Dallas; Woodbury, Bullock, and Ives processes. On this occasion, Mr. C. Geddes, member of the Society, observed that amateurs might very well manipulate the processes now known so as to make printing blocks from their own negatives, especially if they adopt the ColloTYPE process. According to Mr. Geddes, amateur photographers would find here a new field, very fertile in amusement and usefulness. Those who might wish to cultivate it in France and in Belgium would do well to consult the excellent manuals of M. Léon Vidal, which will furnish them with the elements of success.—  
DR. PHIPSON.

SIMPLIFIED DEVELOPMENT OF PLATINA PRINTS.—At the London Photographic Association, several members exhibited platina prints, namely: Messrs. Wellington, C. Cooke, and G. W. Cox. On this occasion Mr. Cox called attention to the fact that these prints may be perfectly well developed with a cold and saturated solution of crystallized carbonate of soda. Although the paper used dated back to six months, this development gave excellent results; it is not necessary, therefore, to use a solution of oxalate of potash. The crystallized carbonate of soda made use of is that employed for washing purposes and is generally known as sal soda.

Mr. Wellington asserts, moreover, that if the prints have been sufficiently exposed, it is only necessary, for the development, to make use of pure water.

A POPULAR BOOK.—It happens that the popular volume of practical photography formerly published by Mr. Jabez Hughes; and styled: *The Principles and Practice of Photography*, the first edition of which appeared in 1860, has had no less than thirteen successive editions of five thousand copies each. It may be said that this little treatise must have done a great deal to popularize photography in England.

NOTICE OF OBERNETTER.—Dr. Vogel has communicated to the *Photographic News*, a very interesting little notice on the late J.

B. Obernetter, of Munich, whose death was recently announced, at the age of forty-two years, from heart disease. He was a son of the Inspector of the State Printing Office, at Munich, and having considerable taste for chemistry he studied it at the Faculty of Leipsic. Later, he became laboratory assistant to the celebrated Professor Pettenkoffer; then he worked in the laboratory of Professor Keyser. It was at this time (1860), that Liebig gave him the advice to apply himself to photography, and at the end of this same year, he entered into the establishment of Mr. Albert. It is in the ColloTYPE process that Obernetter has especially distinguished himself; but his enthusiasm and his industry are well known to our readers. Those who knew him personally speak of him as a very amiable and modest man.

DISCUSSION ABOUT LENSES.—At the *London Photographic Society* there exists since some time, an interminable discussion on lenses, with the view of establishing, if possible, "a standard for lenses," Mr. Cadette having wished to modify the laws of Dallmayer that the Society has adopted. Most of the members, on the contrary, are of the opinion that these rules suffice for practice and should be maintained intact.

MELBOURNE PHOTOGRAPHIC EXHIBITION.—Mr. Parton, member of the *Amateur Photographic Association*, of Victoria, announces that the annual exhibition of this Society will take place at Melbourne (Australia), next July. Mr. Parton is now in London (59 Rochester Row, N. W.) and places himself at the service of photographers desirous of exposing their work on this occasion. The postal facilities are to-day very great for the rapid and cheap transportation of photographic prints.

COLONEL RUSSELL, author of "Russell's Tannin Process," died at his home in England, May 16th. He was thirty-one years an amateur photographer.

MR. ROBERT BARR ("Luke Sharp"), of the *Detroit Free Press*, has returned to his duty after "amateurizing around the world" with one continuous Eastman film. His effort to establish an agency for "the film"

on Mount Cervin, in Switzerland, was not a success. Atmospheric changes render the use of the film impossible there; Mr. Sharp has fallen into melancholy in consequence.

A TREMENDOUS address was delivered by Colonel Harding the President, on the occasion of the late "tea" of the Leeds Photographic Society. The gallant officer wisely gave the "tea" first.

"THE right of the negative." Who can tell where it lies? They discuss it much in England.

THE *News* of May 20th, is embellished by a moonlight view of the Brussell's Commercial School Building, by Mr. Hector Collard. It is the finest view we have seen made by moonlight.

THE *News* kindly comments upon our "Pharaoh" paper in the *Century Magazine*, but errs in saying that the burial place of Pharaoh was unknown until the middle of last year. The place was found in July, 1881, and we made our views a few weeks after.

### PROPERTIES OF GELATINE.

MR. CHAPMAN JONES, who is giving at the *Birkbeck Institution*, at London, lectures on photography, recently spoke about our actual knowledge of gelatine. This substance, said he, varies a great deal according to the method of preparation and the source. In regard to its chemical composition, it is sufficient for the photographer to know that it is an azotic substance containing 0.1 to 0.7 per cent. of sulphur. Pure, it is colorless, transparent, hard when dry, tasteless, and neither acid nor alkaline. It sinks in water. Heated, it melts and decomposes, giving out azotic vapors; completely calcined it should only leave an ash residuum of from 1 to 2 per cent. Placed in cold water, the gelatine swells a great deal and absorbs from five to ten times its weight of water, without perceptibly dissolving. This swelled gelatine is *dissolved in hot water*, said the author (is it really a solution, or rather a sort of emulsion?). If the water used to dissolve it does not exceed by one hundred times the weight of the gelatine, the solution when cold thickens to a jelly.

With 150 parts of water for 1 part of gelatine, the solution remains liquid. By heating a long time the aqueous solution, as when emulsions are cooked, it loses its property of becoming a jelly. This effect takes place gradually; but alcohol will precipitate from such a solution a gelatine which will again become a jelly when heated with water. Strong acids and even acetic acids render soluble and modify gelatine in divers ways. The acetic solution, although it does not solidify, remains sticky. Diluted nitric acid acts in the same manner as acetic acid, but diluted acids, in general, do not prevent gelatinization, neither does it render the gelatine insoluble; this remark also applies to alkaline solutions and ammonia.

Damp gelatine, exposed to the air, is decomposed; it first becomes acid and then alkaline. Thus, the acidity of a sample indicates that decomposition has commenced, or else, that the acid used in its preparation has not been completely removed by washing. At the temperature of 70° Fahr. the decomposition of damp gelatine commences at the end of twenty-four hours; but dry gelatine may be kept indefinitely. The soluble salts of gold and silver do not render gelatine insoluble, according to Mr. Jones, and such mixtures are easily acted upon by light. Tannin forms an insoluble compound with gelatine, but it cannot, without danger, be applied to a negative on gelatine, unless it be in a highly diluted solution. Bichloride of mercury, platinic chloride, chrome alum, and chlorine gas, render gelatine insoluble, and alcohol precipitates it from its solutions in water. Bromine and iodine combine with gelatine without rendering it insoluble. Antiseptic substances, such as salicylic acid, alum, etc., prevent the putrefaction of gelatine or retard it. Such are the characteristics of this remarkable substance as made known by Mr. Jones to his hearers.

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### AN OPEN LETTER TO GUSTAVE CRAMER, PRESIDENT OF THE P. A. OF A.

MY DEAR MR. CRAMER: It is now about thirty years since I first knew you as being connected with the photographic fraternity,

and during that period I have known no one who has taken a more unselfish interest in the success of photography than yourself. I therefore consider the P. A. of A. as most fortunate in having as President one so thoroughly devoted to the interest of the craft. Knowing these facts as I do, may I not feel justified in addressing you upon the subject of the management of the P. A. of A.?

At the late St. Louis Convention, where you were one of the leading spirits, we had one of the finest, if not the grandest, photographic exhibit that was probably ever made; and I regret that the general public could not have enjoyed such a magnificent display. The results of that Convention were, to my mind unsatisfactory, and for this reason: the Convention cost the photographic fraternity at the lowest estimate \$80,000.00 (this estimate is based upon information gained from an article by Mr. Edward L. Wilson in the *Philadelphia Photographer*). This money was taken from our fraternity and given to the general public; whereas, \$250,000.00 at the least should have been taken from the general public and given to the photographic fraternity. You and your associates will doubtless ask: "How can we reverse this result at our forthcoming Convention?" May I be permitted to offer, in a kindly spirit, a few suggestions for your consideration?

Would it not be well to make various efforts to interest the general public in our photographic exhibitions? For example, to have the Executive Committee issue complimentary tickets finely printed from an engraved plate (which plate, by the way, would cost the Association nothing, as I will guarantee that it be donated), and have these tickets judiciously distributed by the local Secretary among the photographic galleries in the city where the Convention is held, and also in the adjoining towns. I would have the local Secretary ascertain just how many names are on the Association register, and have him issue one complimentary ticket, which would admit a lady and gentleman, to each name. Of course, members of the press and prominent residents of Chicago, should not be overlooked in this judicious distribution of complimentary tickets. Their presence and patronage

would do much to insure public interest. This would cost very little, and would, I am sure, tend to educate the public taste in photography. I would have a promenade concert every afternoon and evening, making the price of single admission, say, fifty cents, and a ticket for a gentleman and two ladies one dollar. I have no doubt that of the recipients of the complimentary tickets, at least one-third would buy tickets to visit the exhibition after they had once become interested in it. If the public had opportunity of seeing the work of such men as Ryder, McMichael, Landy, Guerin, Scholten, Mora, Strauss, Kent, Brand, Hessler, Platz, yourself, and many others, it certainly would create a taste for more and better pictures. You will probably agree with me that if the public could be persuaded to examine such pictures, the beneficent result to photographers could scarcely be measured. Are we not now after all conducting these exhibitions on fraudulent principles, calling it love for the art, instead of purely for the education and financial benefit of photographers?

Let me relate to you an incident which took place at the Cleveland Convention, under the auspices of the old N. P. A. At that convention Mr. Ryder had a fine band of music, and, as a consequence, each afternoon and evening the exhibition was attended by the élite of Cleveland and suburbs. Mr. Ryder freely distributed complimentary tickets to the press and prominent society people, and the result was that he turned into the treasury at the end of the Convention, after the expenses were all paid, some ten or fifteen hundred dollars, all of which sum was taken from the general public entirely. A suburban photographer, whose patron attended that exhibition, told me that his customer had greatly admired some fine photographs therein exhibited, and had asked him if he could make them for him. The photographer replied that he could do so, but that they were rather expensive photographs. The result was that he got an extra price for the photographs, and received from that family \$41, which, for that time and place, was a handsome sum.

I believe that if the general public could be induced to visit the forthcoming Chicago

exhibition (which it certainly can), it will benefit the entire photographic fraternity of the United States, and like other advertisements, its far reaching influence cannot previously be measured. This would have a greater tendency to advance the price of photographs than all the talk about Cheap Johnism which we can do for the next ten years. Let the public see what good photography is, and we will have no trouble to get good prices.

In conclusion, let me ask if you consider it just to demand of a photographic stock-dealer or merchant, who has gone to the expense of making an exhibition of his wares, a charge for the admittance of his workmen to arrange and manage his show?

Wishing you and your Convention abundant success, I beg to remain,

Yours truly,

FLANDREAU, SR.

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### PHOTOGRAPHIC FACTS AND FANCIES.

"REMBRANDT" LIGHTS.—A more positive misnomer does not exist in portraiture than the application of the name "Rembrandt" to the pictures which are illuminated on the short side of the face. But probably my dictum will not be accepted on this point; so I will accept the name, and answer briefly a correspondent, who, signing himself "Rembrandt," asks, "When should the Rembrandt lighting be used?" As a general rule, which will have many exceptions, broad, round-faced subjects should be placed in the ordinary broad (and really Rembrandt) light; while the hollow-cheeked and wrinkled face should generally be placed in the other, or, *so-called*, Rembrandt light! Rembrandt pictures are nearly always lighted with a broad light on the full side of the face, with the narrow side in shadow almost to opaqueness. If Rembrandt had become a photographer, his first act would have been to put all reflecting scenes out of doors. One of the best examples of real Rembrandt lighting is the splendid portrait of Mr. Beecher, which was recently exhibited in Tiffany's window, painted by A. J. Conant. The exceptions to the general proposition above are, as I

have said, quite frequent. If the light is sufficiently high to develop modelling in the lights, a heavy, overhanging brow will give a cavernous effect to the eyes, and the ordinary portrait light must be used, where, if the eyes were not so sunken, the other light would be effective. I may add that when one eyebrow droops perceptibly, or the eyelid may have the same tendency, it is well to turn that side of the head into shadow, so that the inequality be in a degree hidden. When the eyes are very black, and seem to protrude from the head, the so-called Rembrandt effect often overcomes the large reflections which in such cases are so noticeable.—GEO. G. ROCKWOOD, in the *Art Amateur*.

MR. FISH has just published the second part of his *Treatise on Photocopy*. This work contains the description of divers processes already alluded to in the *Moniteur de la Photographie*, such as the processes for photo-tracing, printing on the Eastman papers, on platina papers, on zinc with double coating of bitumen and albumen, etc. We have here valuable information of great practical utility.—*Moniteur*.

*Le Bulletin de l'Association Belge de Photographie*, in its last number contains a Woodburytype of the late Léonce Rommelaere, founder of the Association, in 1875. At the time of his decease Mr. Rommelaere was Director of the Industrial School at Brussels, and as early as 1872 he had obtained from the government permission to deliver lectures on photography, which he had continued up to the present time.

Among his colleagues he leaves universal regret, and the recollection of his activity, of his devotion to his work, and of his kindness will always remain.

A MORE economical method of "rendering windows opaque" than that given on page 291 of your issue of May 21st, is to paste tissue paper over the glass. Any desired color can be found at the shops.

HELEN GARDNER.

## OUR PICTURE.

THOSE of our readers who attended the St. Louis Exhibition last year will remember how constantly a German picture which hung in a corner of one of the apartments was surrounded by interested observers. It was one of the series secured by Mr. G. Gennert, of this city, and came from the studio of Mr. C. Pietzner, Teplitz, Germany. A reduction of that gem of our art appears as the embellishment of our current number, and we need only to refer to it to secure renewed admiration for it. We have already expressed our opinion of it in our review of the Exhibition some time ago. In our opinion it has qualities which no other picture seemed to possess. The original was 12 x 17. It has been called "Sad, Sad News," and it does not seem misnamed. The fair subject has posed well her part, and the technique of the picture is superb—a rare study and a pleasant reminder of St. Louis and the fraternal feeling existing between the fraternity in Germany and America, which is *good news*. The unexcelled phototype reproductions were made for us by Mr. F. Gutekunst, Ninth and Arch Streets, Philadelphia. We do not see how they could be better, copied, as they were, from a photograph.

## 300.

THREE hundred numbers of THE PHILADELPHIA PHOTOGRAPHER have now been issued under our editorial head. We do not think any editorial co-worker in the world can boast of such a record. There are older magazines than ours—several, though not many—but we believe that no present editor has occupied his chair of trust and tribulation for nearly twenty-four consecutive years. In all this time not one issue has been delayed by our personal illness. A servant of the sun's own art, the sunshine of blessing, good health, and prosperity has fallen upon us since we carried the whole of our first number to the Post Office under one arm, until now, when we issue in commemoration our *Quarter Century in Photography*.

We feel like celebrating in some way.



We should like to be joined by those who subscribed for our first volume. But as they are so widely scattered, we can only offer to take them by the hand mentally, while together we offer up grateful thanks for so much good. And then on we go for God, country, art, taking as our motto that of Alida, "If I could gain, howe'er so little, to improve, I'd give it to the world for benefit."

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### OBITUARY.

JAMES E. MCCLEES.—One more "father of photography" has gone to rest. As we have already briefly announced, James E. McClees, veteran photographer of Philadelphia, died at his home in that city on the 2d of May, 1887. He was born in Chester County, Pa., in the year 1821, and was, therefore, sixty-six years of age.

On page 23 of our issue for January, 1878, we published an obituary notice of our old friend Mr. W. L. Germon, in which was incorporated the testimony of Mr. McClees, his old partner. There are many points of interest which pertain alike to the history of our last named friend, and which also reveal the true, tender, manly character of James E. McClees. We have said he was our friend. We enjoyed his acquaintance for nearly twenty-five years, and his various studios were among our places of resort when our art was gradually winding its octopus grip around us to make us its own. We never met Mr. McClees without being impressed with his looks. He was not handsome, though fine looking, but he had a straightforward, manly look which one could never forget who became familiar with it, such as another friend testifies to below. He was an intense *artist*, and many a time we have met together and discussed the sad lack of appreciation of art on the part of the dear public.

He was a fine actor, too, and always most interesting to listen to. His face re-embled that of Edwin Forrest. But now he is gone, and we can only place on record a few data concerning his life-work, and then trust to time to efface the sorrow which lies between the lines.

Mr. McClees went to Philadelphia when

only eight years of age. His first experience in our art began in 1844, with Mr. M. P. Simons, Philadelphia. He formed a partnership with Mr. Germon in 1846, and remained with him at various quarters for eight years. During the partnership they were burned out. In 1854 Mr. McClees made a journey to Boston to take lessons from John W. Black, Esq.

After the dissolution of partnership Mr. Germon remained at Seventh and Chestnut, and Mr. McClees removed to No. 626 Chestnut Street, where they had been burned out. In the summer of 1855 Mr. McClees went to Europe, and returned with Leonard Fauderbeck, who painted the first life-size photographs in oil made in America. In 1860 Mr. McClees removed to 910 Chestnut Street, where he continued making daguerrotypes until 1862. In 1865 he removed to 1310 Chestnut Street; after that to 1200 Chestnut Street, where, in 1867, he sold out to Mr. Wm. Bell, one of his employés.

He then left photography, entered the business of art dealer, and became one of the best collectors of, and dealers in, paintings in America. He continued in this business at 1417 Chestnut Street until he died.

Thus, with photography, as with an old tree, the precious limbs which gave it form and comeliness are torn from it. The outlines are changed for a time, the form is even spoiled, but soon the leaves of time cover over the scars, and the young scions grow out, to bring back the shapeliness, while the shadows of those who are left cover the graves of the dear departed.

"James E. McClees, of Philadelphia, whose death is recorded in this issue, was a man whose like, in business circles, we seldom meet with in our days. A Christian to whom every day in the week was Sunday, he carried into his business life that nice sense of honor and uprightness that marked a perfect man. His business ways were of a character that cannot be taught or instilled by the most elaborate training. They were the methods that only come from a perfectly honorable mind, and are dictated by a pure heart. We knew him well, and can safely assert that during all the forty years of an

active business career he never told the slightest falsehood, or made, either by word or implication, a misrepresentation for the purpose of achieving an end, no matter how advantageous.

"In his counting-house or factory he was the same honorable gentleman as he was in his own home. A man pure in intention and guileless as a child, his word was as good as his oath. He was that kind of a Christian that the world can ill afford to lose. Without cant or show, his whole life was a sermon of practical charity, and of kindness and good works to his fellow men. As the sins of men pass to their children, so will their good example and harmless life descend to their offspring and influence their lives. And the life of such a man as James E. McClees must live, a clear stream in the muddy waters of mercantile life, flowing on for generations to come, pure as his own life, making better and nobler all the business circles with whom it came in contact. It is a pity that we have not more men like him."

M.

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[Translated for the Philadelphia Photographer.]

## APPLICATION OF PELLICULAR PAPERS TO PHOTOGRAPHY.

BY M. BALAGNY.

AN important revolution has taken place of late, in the opinion of those who devote themselves to photography; more is asked from this art; formerly the fugitive prints given by the silver salts were all sufficient; to-day more is required, the prints must be permanent and it is with carbon or fatty inks that these positives can be obtained. These two processes are now well known; our most distinguished amateurs make use of the first. As to phototypy it is practised on a large scale by several Paris houses. It is necessary, as we all know, for these two modes of printing, to make use of reversed negatives, and there are but very few preparers of pellicular plates. We have deemed it advisable, consequently, to again speak of our process with pellicular paper, presented in 1882, at the time of the concourse

of the Gaillard prize, and which possesses the particular merit of immediately giving a reversed negative in the way desired by the operator.

As in the case of our flexible plates, we have recently introduced improvements entirely new in this kind of paper. It is sold in very smooth and regular films, as rapid as those of flexible plates, but it may be exposed, if necessary, several seconds, and even several minutes. In the developing and other baths it does not curl up. The liquid does not flow between the paper and the pellicle, and it may be reversed without fear of accident.

The transfer is optional. For small sizes it may be done away with. By steeping the negative, on coming from the washing, in a bath of cold water, to which five per cent. of alcohol and five per cent. of glycerine have been added, it is allowed to remain an hour and then applied to a plate, the paper against the glass; the gelatine roller is passed over the surface to obtain complete adherence, and it is then allowed to dry. When dry varnish the cliché with parrayon varnish, and cut with a point at a short distance from the edge; the pellicle will raise, leaving the paper stuck to the glass.

We give here this process, so simple: as to transfers, we will simply say that they may be made on all bodies, gelatine, glass, wood, metals, etc.; moreover, the transfer may be made either on the right or the left side, giving either a cliché transparent as glass, or a cliché mat, according as the colodionized side or the gelatinized side has been placed in contact with the gelatine or the plate.

In regard to transfers on glass, we point out as principal applications, transparencies, projections, and stereos, which also, as in the case with gelatine transfers, may be obtained either mat or transparent, by judiciously using the mat sandrac varnish or the copal varnish called crystal varnish.

But of all these applications, the most important, and that for which it seems especially adapted, is phototypy, which requires a reversed negative and which finds it at once in our pellicular paper, thus assuring to the phototypic plate absolute contact.

### ENAMELLING PROCESS.

A NEW dodge and giving curious results, has been indicated by our esteemed colleague, M. Vidal, namely, the reproduction of designs engraved on glass on the surface of gelatinized prints or on gelatino-bromide. We translate from the last number of the *Moniteur*, his process:

Small sized prints on Eastman or platina paper, are much improved by enamelling; the blacks are more intense and the details are sharper. The images are also more transparent and they can better compete with the impressions made on albumenized paper. To enamel these prints it is simply necessary to apply them wet against a talcid or an ebonite plate. But in either case if the print has been made with margins, the whole, image and margin, becomes brilliant. If the enamelling is to be only on the image, it is necessary to cut and mount on a card. It is more attractive to have the mat and the brilliant by the same operation, by using engraved or ground-glass in the portions corresponding to the margins. The operation is not more complicated; it consists in making use of masks of the desired dimensions in order that the image should fall exactly on the place which it is to occupy on the polished portion of the plate. The margins in this case will cover exactly the unpolished portion, and after complete desiccation, by separating the paper from the plate, an enamelled image is produced surrounded by mat margins. If instead of obtaining a mat border we wish to have a frame, it may be obtained either brilliant or modelled, tone over tone. This will depend on the kind of engraving adopted. It is also possible to obtain a surrounding in relief on the reverse, by using plates engraved with raised or sunken lines. The Eastman paper being coated with gelatino-bromide of silver, it contains enough gelatine to give above result without the addition of any more gelatine. This would not be the case if the same end was to be reached with platina papers or even carbon prints and phototypes.

In this case the images are coated with gelatine dissolved in water, in the proportion of five parts by weight for one hundred

parts of water. If it is desired to make frames in sunken or raised lines, it is well to coat the engraved plates previously talcid, with sufficient gelatine in order to well fill up the depressions. In this case desiccation is a little slower, but the effect is more striking. The engraved plates may be collodionized after talcid, but this operation is not absolutely necessary. When the print is placed on the engraved plate, at the place it is to occupy, it is lined with strong paper, pasted on the back so as to obtain, after separation from the plate, a sufficiently rigid print. This doubling may have more or less thickness according to the uses to which the prints are to be put. Prints on Eastman paper have been enamelled in the establishment of M. Nadar, by the above described process, and their artistic appearance, owing to the transition from brilliant to mat, and a judicious framing, were highly appreciated by the members of the French Photographic Society, to whom they were shown.

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### CAUGHT AT LAST.

THE PHOTOGRAPHER is not always successful in catching what he focusses at, but once in our plain and checkered life we have had success. We focussed our "concealed" camera, and we have caught our man. For several years back—say three—our amiable readers in Chicago and the rest of West-kind have been afflicted by the *cyclonic boreasis* of one of the editors of the *Detroit Free Press* who "joined the army" of amateur photographers in 1883, and at once conceived that he had stumbled into greatness. Ever since, as we have said, this wild photo-cyclone of the wild West has, through the medium and encouragement of an otherwise wise and family sheet, shaken out his incendiary conceit, and became un-barable and remained at large.

We were appealed to to find him out. First we advertised for pictures of cyclones; his'n didn't come—he didn't adhere. Then we gave editorial notice of our desire for pictures of cyclones taken in the act—coat off, sleeves unfurled, pneumatic holder in hand, just ready to drop.

As a result, the following appeared in the *Free Press* on Sunday, May 29:

PHOTOGRAPHING A CYCLONE.

"We feel it our duty to an enterprising body of men to give them a solemn word of warning that, it is to be hoped, they will ponder. The photographers of the West, both amateur and professional, are deserving citizens whom we could hardly do without. They are both useful and ornamental, and they are not in the habit—while cabinet pictures are \$2.00 a dozen—of accumulating vast hordes of wealth and thus keeping the money out of the hands of the people, as is the custom of Jay Gould and others who know not photography. Therefore, photographers should have the support and sympathy of all good citizens.

"A most insidious piece of advice has been tendered to the photographers of the West, and the worst feature of it is that it comes from a quarter that has hitherto commanded the confidence of all who worship the sun. Dr. Edward L. Wilson, artist, author, lecturer, and traveller, the editor of *THE PHILADELPHIA PHOTOGRAPHER*, and the author of those interesting articles in the *Century Magazine*, the explorer of Petra, and the discoverer of Pharaoh, is the man who deals the fell blow. In the latest number of his magazine he says, with a charming assumption of candor, that the one thing that scientists of the East yearn for is a photograph of a wild Western cyclone, taken on the fly. Of photographs of the effects of a cyclone it seems there are plenty; but of the cyclone on the rampage, no copies are extant, and Dr. Wilson will pay a big price for a picture of one, taken, as it were, on its wild rush from the third base to the home plate. Now, if the photographers of the West were to act on this hint, the result would be that we would have no photographers in complete repair West of the Detroit River. The air would be filled with the débris of cameras, and the roofs of our best buildings would continually be having impromptu skylights knocked into them by falling photographers.

"Of course, it is easy to see why this sinister advice is tendered. Not only would cameras go skyward, but the demand for

new cameras would become so great that prices would have the same upward tendency. It is easy for a man accustomed to photograph the calm, imperturbable smile of Pharaoh, to advise another man to photograph a cyclone. There are some slight differences between a cyclone and a mummy. No man who has ever found himself directly in the track of a cyclone, that is feeling particularly frisky that morning, needs to be informed of that fact. Nothing so delights the average cyclone as to catch a photographer with his head under the black cloth. It gives him some points on the instantaneous process that he will never forget. For a time it is impossible to tell which is the photographer and which is the camera. It leaves him on the top of the highest tree in the neighborhood, and drops the camera down on the head of some innocent citizen who knows nothing of photography, and doesn't want to have any further experience in it.

"A cyclone is peculiar. It will not use the head rest; it will not hold its chin a little higher, nor assume a pleasing expression. It will not fix its eyes on the notice "terms cash." But what it consents to do, it does with an energy that more than compensates for what it refuses to do. Our advice to Dr. Wilson is to take a boiler iron camera and some steel plates and come West himself; let him tackle the festive cyclone in its native lair, and then let us know how he likes it."

Thus it will be seen we have caught our man. With his usual suddenness he thought he would escape us by focussing behind the Sunday edition and quoting Scripture names and a respectable New York magazine. He was not sharp enough, though abundantly mean, to succeed. He is ours. We denounce his insinuation that we were "seen" or retained by camera makers. It is not true. The only time we ever d'd anything nearly so bad was to wickedly employ a whole day of our valuable time in Detroit and Windsor, Ontario, in teaching this "funny" cyclone how to keep the focusing cloth on his camera in a wind, and how to know when he stood in front of truth and veracity.

## COMPOSITE PHOTOGRAPHS.

An interesting craze in photography is the effort to produce what is called the "Composite" photograph. This means a succession of photographic impressions imposed one upon the other in the same plate, so as to produce in a single picture the combined likenesses of various persons. For instance, three or more people are to be "averaged," so to speak, upon the sensitive plate. First, one is posed before the camera, in direct front or profile view, for such a fraction of the time as would ordinarily be given to one sitter as may represent the number of persons to be photographed. If three persons are to be represented, and the full time of exposure would be six seconds, the exposure for the first one of the three would be exactly two seconds. He now steps aside, and the second one adjusted to the *headrest*, and, when accurately placed, he in turn gets a sitting of two seconds, and so with the third or fourth. Each one who sits before the camera represents his proportion of the full time required. So, in the case of twenty, the instrument must be so stopped down and the light so arranged that, if used upon a single sitter only, the exposure would be twenty seconds. Of course the exposure to one of the twenty would be one second. Recently I made one of these composite pictures of nine young ladies, members of a literary club. The result would certainly indicate a high average of intellectual ability, if there is anything in the teachings of physiognomy or phrenology. My method of working is different, and, I think, much more simple than that followed by others, as the result is obtained in one operation. As I understand the previous methods, each person has been photographed separately, and from the negatives a transparency has been made, and these each in turn copied on to one plate. I see no reason why the members of the composite should not be photographed directly upon the plate. My method for securing this picture was to so reduce the power of the light as to make necessary an exposure of eighteen seconds. As there were nine sitters the pro rata exposure was nine seconds. Of course it required great care to superimpose exactly one image upon an-

other. It was accomplished as follows: I first drew upon the ground glass a fine perpendicular pencil-line, which served as a central line to the head. Across and at right angles to this line I drew two others, an inch and a quarter apart, one of which ran through the line of the mouth and the other through the eye, at the caruncula, or at the joining of the upper and lower cartilages. These lines were arbitrary, and the image was adjusted to them. Of course there is quite a variation in the distances between these two lines in the human head, therefore the camera had to be carefully adjusted after each exposure. As it was very difficult to do this by hand, I constructed adjustable boards hinged at one end with fine screws, so placed under the camera as to elevate or depress it, and another screw to move the whole camera and bedplate forward or backward, until these distances between the eyes and mouth were made to correspond with the standard. I then made a pendulum by a weight on the end of a string, about forty inches long, practically giving one second to a motion of oscillation. This I found more practicable than a watch. Starting my pendulum, the impressions were made in quick succession. Of course, the slide was returned to the holder after each exposure, and a new focus or adjustment of the succeeding sitter made. The only modification to the final picture consisted in uniting the white collars or neck-wear into one. I think it would be best in future experiments to have a dark or black silk kerchief with which to cover the white neck draping, which would give a simple, uniform effect to the upper part of the body.

In pursuit of these experiments, some curious developments occurred. At first I made the natural mistake, I think, of not taking into consideration what one must call the *momentum* of the sensitive particles from the first blow or stroke of the light. There is on the unexposed plate what the scientists call atomic inertia. On the first exposure this is in a degree overcome, and the particles of the sensitive compound receive motion from the impact of the light, which is continued to a degree after the cessation of the exposure. The apparent effect, of course, is to increase the sensitiveness of the plate, so

that the exposure should not be equal on the successive subjects, but each exposure should be less than the initial one.

This overcoming of the atomic inertia is to me an explanation of the curious fact that instantaneous photographs were made in the old days of the wet plate process, when the plates were not one-fiftieth as sensitive to the action of a dim or subdued light as the present gelatine bromide plates, when they were opposed to *brilliant* light.

a quick and successful picture, or, in other words, the later bromide plates are more successful to feeble rays of light than the wet; but in brilliant lights there is comparatively less difference in the sensibility. Hence, I think the stroke, blow, or impact of the bright ray overcomes this atomic inertia, imparting a momentum to the sensitive particles which continues after the light is closed.

Now, if this be so, is there not a liability



Composite Photograph of a Literary Club of Nine Young Ladies.  
By GEO. G. ROCKWOOD.

For instance, successful photographs of waves in motion were made more than twenty years ago, under the illumination of the broad noonday sun, which would not be overexposed on the present super-sensitive plates. Yet in a subdued light the wet plates were in many instances unavailable where the bromide plates would now record

to error in experiments in this line? While I believe that in the picture of the young ladies' club, a fair and characteristic "average" is presented, I can readily see how one of the young ladies with round, smooth face, blonde complexion and flaxen hair, could, if not guarded against, have neutralized the impression of all the rest, if they

were of a darker style. As I have intimated, after the sensitive film has been decomposed by the action of light—by the reflection from white or light objects—it cannot be undone or modified by any exposure upon dark objects. So, if one should take a series of impressions from aged persons with faces full of lines and shadows, a fair young face would fill in all these shadows, and it matters not in what order it comes. If the smooth, white face makes its image in light, the faces full of shadow will not change that result. To demonstrate this, I first made a composite picture of a number of middle-aged persons, and, finally, took an equal (*i. e.*, proportionate) exposure from a child's face. The average of the faces is not fifty years, but apparently much younger. Now while this does not prove that an average cannot be made, it does show that the greatest care must be taken to prevent one face from producing a paramount effect upon all the others. A simple illustration of this is that, although only one of the young ladies in my group had light trimming on her dress, it made itself quite apparent in the picture, although all of the rest wore plain, dark dresses.—

GEO. G. ROCKWOOD in the *Art Amateur*.

## PRINTING PERPLEXITIES.

THINGS WELL-KNOWN BUT BADLY  
NEGLECTED.

(Continued from page 345)

A GREAT deal of the effect of a portrait will depend on the position the figure occupies in the picture. As a general rule, if the head be not equidistant from the sides of the picture, there should be more space allowed before the face than behind. A disregard of this rule has spoiled the effect of many otherwise good pictures. In some photographs, we see the figure walking almost out of the picture, for the sake of showing the last coils of the long caudal appendages with which ladies sweep the dust, thus sacrificing the head for the tail.

The apparent height of the person represented depends almost entirely on the position of the figure on the plane of the picture. The taller the person, the nearer to the top

should the head be placed, and if the figure be a full length, less of the ground should be shown.

It often happens that the figure is made much too big for the picture. I have seen some *cartes* in which the head nearly touches the top of the picture, and the feet the bottom; so that when they were inserted in an album, some part must be covered, perhaps a foot cut off, or perhaps half the head. This is done, I suppose, under a mistaken notion on the part of the photographer, that he is giving enough for the money, a principle to which I have no objection; but let the "enough" be in quality rather than in quantity. A *carte de visite* displaying proportion, taste, and a right feeling for art, is of much more value than a life-size picture, whether by painter or photographer, that does not possess these desirable qualities.—H. P. ROBINSON.

THE most simple method of mounting small pictures (that means the *carte*, *victoria*, *imperial*, or *cabinet*, and the *promenade*, or *boudoir* sizes), is to have them cut of proper shape immediately after the printing, and before being subjected to toning processes; then, after these have been consummated, and the pictures are sufficiently washed, they can be collected from the tank, piled together in small heaps upon a clean glass, and passed over to the mounter. He, or she, can take them one by one, whilst quite wet, and by putting them dexterously in place upon "Slee's prepared mounts," avoid all trouble and expenditure of time in the preparation and use of mountants. Their passage through India-rubber rollers, fashioned after a housewife's clothes-wringer, insures perfect contact between the print and card.

If photographs have not been trimmed previous to toning, and are passed to the finishing-room, of irregular shapes, more time must be expended upon them. The neatest method of cutting out, is by the aid of "Bergner's machines." A separate cutter must, of course, be provided for every size. In lieu of these, and for the indicated purpose, Robinson's trimmers are the most valuable instruments extant.—JOHN L. GIBSON.

I MUST mention a source of photographic distortion so dangerous as to satisfy all my predilections in that direction. It probably is not new in the experience of many photographers, but it has not yet had the attention it deserves through the medium of photographic literature. Its cause is probably irremediable; it lies in the base of all our present photographic prints, viz., the paper, and I have yet to try a sample that is entirely free from this cause of distortion.

If the printer will take a slip of sensitized paper cut from the long way of the sheet, and another cut from the short way or at right angles to the first, and print from each, using the same negative and an oval mask, then tone, fix, mount, and finish, he will be in a position to fully comprehend the really dangerous possibility of this source of distortion. The negative will not agree with either of the prints, while they will not agree with each other. One oval will perhaps be of the same height as the mask which formed it, but from  $\frac{1}{32}$  d to  $\frac{1}{16}$  th of an inch wider. The other print will perhaps be of the right width, but considerably longer or higher. The first print will exhibit a round, fat face, while the other will be longer or more "peaked," neither agreeing with the just proportions of the negative. In the inclosed samples, "Latitude" and "Longitude," the distortion is apparently increased by printing the border portrait through a square or arch-top mask, while the other is printed oval; but the dividers, or measuring tools used to compare them, will detect decided distortion. In the long picture the eyes appear "rounder," the nose longer, and the mouth narrower, and fuller lipped. The broad picture is positively pugnacious, the phenological organ of combativeness being apparently well developed, the nose being "puggy," and the mouth wide. In a profile portrait this distortion is somewhat less perceptible, still the addition, of say the hundredth part of an inch to a man's nose, is not to be sneezed at!

I have made considerable use of it in making fleshy people look thinner, and *vice versa*; and I am particular to print my pictures from certain negatives all the same

way of the paper, so that the subject will have no means of comparison.

My experiments teach me that this distortion exists in greater degree among the later brands and the so-called double albumen papers, while among both these and the thinner papers I find various degrees of difference. The distortion is also much more apparent in prints that are trimmed before printing, and mounted soon after washing or before shrinking by drying thoroughly. It is also more apparent in front views of the face. Long silvering is also an exaggerating cause, for the then very wet paper shrinks considerable in drying and before printing, and expands in washing. I recommend this matter to the consideration of photographers as a more fruitful field for possible distortion than any other ever opened to the fraternity, and as possessing some compensating advantages if judiciously handled.—CARL MYERS.

To get soft prints from hard negatives often puzzles the printer. The general principles upon which prints of various characters can be obtained from the same negative, are pretty well known amongst photographers. It is known that with a weakly salted paper, and a moderately strong bath, a vigorous print can be obtained from a weak negative. It is known that with a hard and dense negative the best prints can be obtained from a highly salted paper, and bath of moderate strength. In either, the chief thing effected is alteration of the relative proportion of free nitrate of silver and chloride of silver. A considerable excess of nitrate of silver tends to the production of vigor, whilst a reduction of the proportion of nitrate of silver decreases contrasts in the print.

With a full knowledge of these principles, it is not always convenient for the photographer to avail himself of them. He is generally stocked with one quality of paper, and he commonly works with a bath of such strength as best answers his purpose for ordinary work. He cannot always get a fresh sample of albumenized paper, with a modified proportion of salt, at a moment's notice; and it is not convenient to make fresh baths for exceptional cases. It is



sometimes possible, however, to meet the difficulty without much trouble. A gentleman connected with the printing department of one of our first photographers, mentioned to us the other day, a successful mode of dealing with a very hard negative without making new preparations. The negative in question was one of those which possessed detail and gradation, but was so intense in the lights that it was considerably overprinted in the shadows, before detail in the whites could be obtained, chalky lights or black shadows being always present in the prints. To meet the case, it was resolved to minimize the proportion of free nitrate of silver on the paper; and after exciting it in the usual way, it was transferred to a bath of distilled water, for a few seconds, prior to drying. This proved completely effectual. The prints produced from the hard negative upon paper so treated were soft, delicate, and harmonious. Overprinting and bronzing in the shadows were considerably retarded by the absence of free nitrate, and the detail in the lights was fully out before other portions were overdone. The expedient, although a simple one, might not occur to every one, and may be found worth remembering.—G. WHARTON SIMPSON.

Of course, one must not expect to get good prints, with clear high-lights and deep brilliant shadows, with proper half-tone, from a weak, useless negative, without some adequate means. To be as brief in my directions as possible, let us suppose a weak—even a very weak—negative, without any printing properties. Thus, retouch the negative as usual in the first place, after which, coat the glass side with a ground-glass varnish composed as follows:

Gum Mastic . . .	$\frac{1}{4}$ ounce.
Gum Sandarac . . .	$\frac{1}{2}$ "
Ether . . .	10 ounces.

Benzole, sufficient quantity.

Now, with a penknife, remove this varnish off every part except the flesh. After placing the negative, ground-glass side uppermost, in the retouching easel, dip a small sable brush in ordinary black lead, and begin putting in the high-lights, commencing from the forehead. Now graduate

off into the shadows. Do not take up too great a quantity of the powder, but work gradually; for you will be astonished to find how little you will need. When you have a negative of proper density, it is ready for your printer; and what was otherwise useless is now a good printing negative. I can do two faces of an inch each easily in about five minutes. It is simple and effectual.—CHARLES KNIGHT.

THE system I adopt is this: I print a proof in the usual way on either Saxe or Rives paper. I prefer the former, and print a little darker than usual. The paper should not be salted with less than twelve grains of chloride of ammonium excited on a sixty-grain bath, although an eighty-grain bath is preferable. It should not be printed to obscure the high lights. Tone *slightly* with gold in the usual way. I know some will say that toning is not requisite, but I find that I get a little more density by it if not carried too far; if it be carried on to the black tones it loses its non-actinic power and color, whereas slight toning seems to increase it. From this paper print, after being spotted out in the usual way (waxing is not needed), print a paper negative in the printing frame. I must here mention that if the original negative in the first instance be a very thin one, the paper positive, before being used for printing the paper negative or mask, may have the shadows strengthened with India-ink. If only a slight intensity be required, this strengthening can be dispensed with, and the depth of printing the paper mask is regulated accordingly. I also like to tone slightly. When dry, lay the original glass negative over this paper negative mask so that everything coincides as nearly as possible, and trim in the usual way. If trimmed at this stage it saves trouble. Wet it to cause it to expand, and just press it between blotting-paper to take up superfluous moisture. Run a margin of thin glue of about a quarter of an inch round the edge of the paper, and then place the bare glass side of the negative on it, taking care to keep an exact margin all round the glass. When dry it will be strained perfectly flat like a sheet of drawing paper on a board.

On looking through the negative from the varnished side one will be surprised to see how the negative has improved in quality and in general appearance. Before doing anything more to the negative it is best to print a proof. In some instances it will be found to give all that is needed; but sometimes the negative is now too intense, which can be easily altered. Lay it, varnished side down, on a table, and give the paper negative backing a coat of castor oil, dissolved in twice its bulk of ordinary methylated spirits, with a flat brush, which will render it more transparent. I consider the oil and spirit better than white wax when it has not come in contact with the silvered paper for printing the proofs. On printing another proof, if this be found to give too hard a print, it will be best to print another paper negative mask not quite so deep. This system may be applied to a negative which has been overexposed and fogged, and will not give a decent print in the ordinary way.

Another point I also consider worthy of note, especially in landscapes; sometimes the foreground prints black and heavy, and, at the same time, the negative possesses abundance of detail, although not strong enough to print. Print a proof and paper negative, and mask, as in the first instance. If it be the foreground that requires the strength, lay the paper mask down on a sheet of glass, albumenized side up; take a brush charged with a strong solution of cyanide of potassium, and go over all the parts except the foreground, which must be left untouched. All those parts will be eaten away, and leave the paper quite white; it must then be well washed, and attached to the glass negative as before described. If the sky does not print white enough, or if it be stained, I take the paper positive, before printing the negative from it, and treat it in the same way with the cyanide, which will cause the negative mask to print very dense, so as to completely mask the sky. I believe this to be a very efficient and neat system of mapping out a sky when required.—WM. BROOKS.

The fitting up of vignetting boards to blend nicely occupies considerable time, especially when made from cardboard, in the

old-fashioned way. A great saving of time and most beautiful effects can be obtained by using the Waymouth vignetting papers, for with these it can be so arranged that there is no abruptness in the softening off of the printing; any sudden chopping off, as it were, being fatal to the appearance of a vignetted picture. In these days of large heads, it seems to me that sizes for cards and cabinets, narrowest at the bottom of the "pear" shape, would come in very handily, there not being sufficient space on the picture to admit of a rounder form of blending, but rather longer; this can easily be overcome by gumming a little frill of cotton wool (pulled out nicely) on the lower sides of the vignette paper.

While on this subject, I will note a very ready way of adjusting the vignette paper. Most photographers take two cards on one plate, and as it rarely happens that the vignetter will be found in the right position for a succeeding picture, considerable time is saved in adjusting it, not to mention the saving in wear and *tear* on the papers. After tacking pieces of wood on the printing-frame, sufficiently high to please your fancy, on this tack a piece of thick cardboard, in which a hole has been cut large enough to answer the purpose, at about the spot under which the figure on your plate will come when placed in the frame. Lengthwise of the frame (or otherwise, as the case may require, if for single figures taken on the plate vertically), *nail by the ends* two strips of wood, one at the top and the other at the lower side. By leaving the central part of the strips free, and having the opening in the cardboard (which may be left on permanently, if desired) large enough to admit of moving the paper over it without cutting off any of the vignetter, the vignetting paper can be slid between the strips of wood and the cardboard covering the frame, adjusted readily, and securely held with a small piece of gummed paper. Whether the negative to be printed be right or left on the plate it will answer; all that is necessary being to slide out the vignette and reverse it. This, of course, will answer equally as well for the old style as the Waymouth vignette papers, which are now taking their place.

One word of caution to those who use mucilage for attaching masks to their negatives. It will invariably cause the film to leave the plate. There are always pieces of damaged *unsilvered* albumen paper in a gallery, and with these cut into suitable size, and slightly wetted, masks can be attached to the negatives without any fear of the films lifting, or being marked, providing the varnish has thoroughly hardened. Again, India-ink, when used for stopping out the skies in negatives, or where considerable body is required, will in time, surely destroy the film, although they be varnished with the very best varnishes; this being occasioned by the quantity of gum contained in it. India-ink should on no account be used; this I have found out to my cost. There is a red paint (Gihon's "Opaque") sold by the stockdealers for the purpose, which is much more easily applied, and which does not in any way affect the films, at least it has not on any one of mine, some of which have been stopped out with it for six years past — A. W. DESILVA.

**PAPER PRINTS WITH MIRROR-LIKE SURFACES.**—Of all the methods which have been proposed for giving a high gloss to prints, that in which gelatine is employed, no doubt, is attended with the best results.

A plate of glass is thoroughly cleaned and rubbed over with a solution of wax in benzine, and then polished smoothly by light pressure. Care should be taken to fill the polishing-buffer with wax, so that the surface of the plate is not rubbed off by the friction. The polishing is soon effected. Common raw collodion is now poured on the waxed glass, and when it has set the plate is dipped in water.

The print is next soaked in water to which a few drops of ammonia are added. If the water should run upon the paper as upon a greasy surface, it is allowed to lie longer in the water, or a little ammonia is added. The red tone which the print receives is subsequently removed. The plate likewise is allowed to remain in the water until the surface has uniformly received the water.

The print is next taken and laid upon the plate under the surface of the water, and both drawn out together, all bubbles being removed by pressure. The plate and print are now dried between blotters, and put in a warm place until quite dry. The collodion is now loosened along the edge of the plate with the point of a knife or needle.

The surface thus produced is equal to that of a mirror of French plate, and at the same time the picture has gained in clearness of tone.—*From the German Press.*

### THE HUMOR OF IT.

"And throw a cruel sunshine on a fool."

ARMSTRONG.

Thus sang the poet in his dream of having a picture taken.

PHOTO-ARTIST (to gourmand): "— So, there, now keep quite still and think of your favorite dish!"

AMATEUR photographer (to farmer)— "Will you allow me to take a picture of the old mill yonder?"

Farmer.—"Yes, sir, if you kin find room."

Am. photog.—"Room!"

Farmer.—"Ain't you one of them amachewer fortographer fellers?"

Am. photog.—"Yes, sir."

Farmer.—"Well, there's twenty down there now!"

## Editor's Table.

MR. GEO. G. ROCKWOOD, always the enthusiastic, progressive artist, gives a fine paper this issue on composite photography. He is the editor of the photographic department of the *Art Amateur*, and an able one.

MR. H. S. BELLSMITH, Secretary of the P. A. of A., has returned from a long tour South and West, and writes us enthusiastically of the prospects of the Convention. His address will appear in our next.

MESSRS. LOEBER BRO.'s, 119 and 121 Nassau St., New York, have now arranged two well accoutred developing rooms, to which they welcome all who need to use them, whether patrons of their supply house or not. Surely a generous offer—just like them.

MR. ALBERT MOORE, 828 Wood St., Philadelphia, favors us with two most interesting pictures—1. An interior view of the skylight used by LANGENHEIM BRO.'s (the first) in Philadelphia, and another of the new studio of GILBERT & BACON. In accessories and apparatus there are great differences. In general construction the plans are much alike.

MR. JOHN CARBUTT has recently made some important changes in the cooling apparatus at his splendid dry plate works, and will now be able to work uninterruptedly all summer, be it ever so hot. We shall soon have "our picture" from Mr. Carbutt's plates—a genuine gem.

THE most demoniacal cluster of cat pictures which ever came to our office came lately from Mr. S. R. STODDARD, Glens Falls, N. Y. They are rare songsters apparently.

MR. H. A. HYATT, St. Louis, Mo., is deservedly called "the most live stockdealer in the Southwest." He is already working up a new and splendid catalogue, his former edition being exhausted. Some of his specialties are newly illustrated this month. Much success will follow such enterprise and liberality.

SCOVILL'S "New Negative Washing Boxes" and their "Peerless Dark-room Lantern" are the trade novelties of the past month, and will be found on sale everywhere.

A NEW work on printing has been wanted ever since *Hearn's Practical Printer* became unprocurable. Rev. H. A. BURBANK a very able amateur, is about to supply the want by his very complete manual, SCOVILL MANUFACTURING Co. publishers. All the tasteful wrinkles, dodges, and manipulations will be included, and from a well practised printer, too.

A REMARKABLE CLUSTER.—A short time ago we tried to recuperate by spending "over Sunday" in the suburban town of Mont Clair, N. J., fifteen miles from this city. We attended Divine service, and, being a stranger, we found a seat in the gallery. The Minister, Rev. A. H. BRADFORD, D.D., was exceedingly instructive, and yet our mind wandered somewhat. This was due in a measure to one surprise after another which occurred. In the early

part of the service a baby was to be baptised. Stepping forward to hold the basin for the Pastor came Deacon SAMUEL HOLMES, formerly agent of SCOVILL MANUFACTURING Co. We had not seen him for years. Casting our eyes downward, we caught a glimpse of the profile of WM. B. HOLMES, and seated by his side his son WILLIAM, now with SCOVILL MANUFACTURING Co. At my right, lo! the seat of W. IRVING ADAMS, Esq. (present agent of SCOVILL MANUFACTURING Co.), with Mrs. ADAMS and Miss MARY WILSON ADAMS, his daughter, Over in the choir was his son, Mr. W. I. LINCOLN ADAMS, editor of the *Photographic Times*. Prof. RANDALL SPAULDING, well known among our literati, sat close by with his family. Mr. GEO. WALE, the optician and amateur photographer, was there; and also the following amateurs: Messrs. JOHN UNDERHILL, S. W. CAREY, Jr., LESTER CHURCHILL, ELISHA TAYLOR, WM. BARTHOLOMEW, HERBERT W. WILDE, GEO. INNES (the famed painter), JASPER RAND, and Misses EMILY SNYDER and FLORENCE CLAPP. Mr. BRADY, the town photographer, also attended. After further scanning we also found Mr. H. W. STEELE, of SCOVILL MANUFACTURING Co. (and family), and Mr. H. LITTLEJOHN, head bookkeeper of SCOVILL MANUFACTURING Co. (with his lovely, aged mother). We began to think it must be a "SCOVILL" Church, or a branch of Chautauqua, until, looking again, we saw, comfortably seated, Mr. RICHARD A. ANTHONY (Secretary of E. & H. T. ANTHONY & Co.), who is also a resident of Mont Clair. Certainly there is enough talent and interest there to form a first class Society. Prof. SPAULDING, we learn, has now classed photography as one of the Course Studies in the Mont Clair High School, of which he is the principal.

PICTURES RECEIVED.—Mr. LOUIS E. MILLER, Alliance, Ohio, has favored us with some splendid examples of his portrait work. The subjects are sweet and airy little misses who pose like ange's. The work is admirable.

To the veteran plate maker comes the following:

MR. J. CARBUTT: I am very much gratified with the working of the plates which you last sent me. If you could have been present yesterday during a demonstration by Dr. EHRMANN with your plates, you would have been highly gratified to have heard his recommendation of them. He puts them highest in the scale of all plates known to us; as does also

Yours very truly, R. S. LEWIS.





J. LANDY,

CHILD STUDY

CINCINNATI.

THE

# Philadelphia Photographer.

EDITED BY EDWARD L. WILSON.

Vol. XXIV.

JULY 2, 1887.

No. 301.

## HISTORY OF THE FIRST COPY OF QUARTER CENTURY IN PHOTOGRAPHY.

MANY a time and oft during the years we plodded over the work required to produce *Quarter Century*, the query presented itself — "Who will buy the first copy?"

Of course we could not tell. But when the time came to issue our prospectus cir-



JAMES McKEIL,

First buyer of *Quarter Century in Photography*.

ular, we decided that the one who was sufficiently enterprising to send the first \$4.00 for a copy, should also be inflicted with

more educational matter, equal in amount, free of charge.

The circulars were scattered and by return mail the first response came. It read as follows:

SIBLEY, OSCEOLA Co., IOWA, May 31, 1887.

EDWARD L. WILSON,

DEAR SIR: Enclosed please find postal order for \$4.00, the price of *Quarter Century in Photography*. Send by mail,

To yours, etc.,

JAMES McKEIL,

with H. G. Doolittle, Photographer.

We thereupon made Mr. McKeil acquainted with our resolve and requested him to send us his picture together with some points concerning his career in our art, and his choice.

The following was his answer:

SIBLEY, OSCEOLA Co., IOWA, June 7, 1887.

EDWARD L. WILSON,

DEAR SIR: Yours of 4th inst. is just received. I thank you for your generous offer. My choice is THE PHILADELPHIA PHOTOGRAPHER for one year, as Mr. Doolittle, of whom I am learning the "Art Science," has quite a large collection of photographic literature including *Photographics*, to which I have access. Therefore I think the journal will be more useful to me. I send a photo. of myself. I am twenty-seven years old, was born in Pictou Co. in *Nova Scotia* Christmas 1859, removed to Iowa 1885, am learning the "Art Science" of *Photography* in Mr. Doolittle's Gallery, located in Sib-

ley, Iowa. Have completed my fifth week with him and he says I am making commendable progress. Thanking you again for your generous offer, I remain

Yours, etc.,

JAMES McKEIL.

Much to our delight, our offer took root just exactly as we wanted it to, in the life of a young disciple in our art, for whom *Quarter Century* is none too old to teach him of our "Art Science." For it begins at the root and treats of every branch.

We wish there were hundreds so earnest and so fortunate as Mr. McKeil, but we cannot repeat history in that special way.

### THE THIEF CAUGHT.

IN our issue for June 4th, in the "Specialties" the following notice appeared.

#### BURGLARY.

Stolen by burglars, at Toledo, Ohio, on Wednesday evening, May 18, 1887, the following property:

One Extra 4 x 4 Voightländer & Son Lens; value, \$130. Property of Geo. Fields, Photographer.

One Dallmeyer, 3 B. Nickel Plated Lens, fitted with a Benster Shutter, No. 20,711; one Rapid Rectilinear, 18 x 16, Dallmeyer, No. 35,335; one No. 1 Improved Euryscope, Voightländer, fitted with a Benster Shutter; one pair Morrison Stereo Lenses. Total value \$400. Property of F. J. Trost, Photographer.

Supposed thief: Man aged about 30 to 35 years; height, 5 ft. 8 or 9 in.; weight, 200 pounds; full face, sun tanned, dark hair, dark complexion, large dimple in chin, sack coat, fine check, light color; broad, heavy shoes, with thick soles; from his knowledge of the instruments, must have been a photographer.

E. O'DWYER, Chief of Police,  
Toledo, Ohio.

The following is the sequel:

Editor PHILADELPHIA PHOTOGRAPHER:

CLEVELAND, OHIO, June 15, 1887.

Advertisements in THE PHILADELPHIA PHOTOGRAPHER not only help and assist the sale of all kinds of goods, but are also effective in catching "Burglars," for, by the

description given in your well known publication of June 4th, I have caught, and delivered up to justice the burglar you described, who stole the lenses from Geo. Fields and F. J. Trost, of Toledo, and I have recovered not only the property named, but also some other lenses stolen in Detroit. I will give you a short account of how it (the catching) was done. On the 4th inst. a man called at our gallery and offered to sell for "a friend" of his who, he claimed, was very hard up and who owned a gallery in the lumber regions of Michigan, a 3 B. Dallmeyer lens. He claimed to be a captain of a lumber barge, and as he made weekly trips, from there to Cleveland, he offered to leave the lens with us for trial. The price was to be \$90.00. We did not wish to purchase but as he seemed to be so well posted in regard to lenses, and photo goods, we became somewhat suspicious, and when he then spoke of a 16 x 18 Rapid Rectilinear Dallmeyer we felt certain that something was wrong, and asked him to bring them down on his next trip. Two days later we received your magazine containing the advertisement of the burglary at Toledo. As the description of the man was almost as good as an unretouched photograph, we felt certain that our visitor was the man. I immediately called on the Superintendent of the Police and made arrangement to have him arrested should he come again as agreed. But Saturday passed and no one showed up. We waited for him on Sunday and even looked on some lumber barges for him without avail. Monday morning brought him with the Dallmeyer Rapid Rectilinear, 16 x 18, No. 35,335. I tried to hold him until I could send word to the police, but could not. I wanted to find the balance of the lenses, which I knew he had here, for he offered me three lenses for \$175.00. I let him go and had one of our printers follow him about the city. After a three hour's walk he was located on board of the barge "Salina." I then called on Detective J. Reeves, and took him to the boat, and ordered the man's arrest. When the wily fellow saw that the game was up he made a statement which enabled us to find the balance of the lenses, with the other stuff he claimed to have carried



from the Detroit galleries. We found on his person the skeleton key with which he picked the locks, and from his remarks judge that he is an old bird in the business. In answer to a telegram, Mr. Trost and an officer from Toledo, came to Cleveland yesterday, and carried him back with them, I was somewhat surprised that Mr. Trost did not call on me while he was here, but as the detective claims all the honor of the arrest, I suppose Mr. Trost was not informed of the part my printer (Mr. J. Smith) and myself played in the affair. There was a reward of \$50, offered by the Police Department of Toledo, of which there was no mention in the advertisement. Mr. Reeves, the detective, had also collected that, but when I heard of it I claimed the same, and he was obliged to turn it over to me. I divided it with our help. You thus see that an advertisement in THE PHILADELPHIA PHOTOGRAPHER is a *good investment*, also a *subscription*. The burglar's name is F. W. Harwig. He says he was a photographer in or near, Au Sable, Mich. It will probably be some time before he makes photographs again.

Respectfully,

A. K. A. LIEBICH.

Certainly Mr. Liebich was very clever to work up this case so quickly and so successfully, and deserves great credit. The advertisement came to us without any request to insert, but we gave it a place and are glad to know the result.

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### SAVING WASTE.

So many are inquiring, "What shall we do with our Waste?" that we publish the following, from a source whose reliability cannot be questioned.

"It is a fact that only about five per cent. of the gold and silver used in producing a photograph remains on the finished picture; the balance is lost, and in giving below a few short and simple methods of saving and reducing photographic wastes and residues, we believe we confer a favor on some of the fraternity.

"Old baths, and the washing of the prints, should be precipitated with ordinary salt,

thereby forming chloride of silver. Add the salt gradually, stirring up the solution, until it forms no longer a precipitate, which you may easily determine by taking a sample of it in a tumbler or white bottle, holding it up to the light when adding a little salt. Don't add too much, as an excess will redissolve the chloride. When the silver is all down, pour in a little acid, either nitric, sulphuric, or muriatic, which will clear the solution; allow it to stand for about twenty-four hours, then draw off your clear water, and you have the chloride on the bottom of the vessel.

"The hypo or fixing solution is very rich. It should be precipitated with sulphuret of potassium, previously dissolved in water, also adding it as long as it will form a precipitate. The latter when down may be thrown on a plain muslin-filter to allow the water to drain off. Such a filter may be readily constructed by taking a piece of common unbleached muslin, say, a yard square, tying loops to the four corners, and hanging it up on sticks.

"A good many photographers are in the habit of precipitating their washing solutions with metallic zinc, expanded in sheets therein. The action of zinc, however, is slow, and must be accelerated by acidifying the solution. Now it frequently happens that the fixing solution is allowed to run into the same vessel, and, the hypo being an alkali, suspends the action of the zinc. In the course of time a deposit out of the water is formed, but the happy proprietors of the 'mud' are sadly disappointed in its value, as it is sometimes even so poor as not to pay for the trouble of refining.

"All prints should be trimmed before toning, as it saves gold, and besides toned paper is of hardly any value. Keep the untoned clippings and filters clean by themselves; do not throw sweepings, pieces of glass, and spoiled ferrotype plates among them, as their bulk only decreases the real value. If you wish to burn the paper, have your stove cleaned of cinders and ashes, and proceed slowly, for a good draft will carry many particles of silver through the flue.

"Your toning solution throw down with sulphate of iron, but be sure and have the solution 'acid,' as otherwise the iron will be

precipitated, and your gold goes where the 'woodbine twineth.' Save your developer and collodion skins, they will also amount to something in the course of time.

"We have likewise found that the wood of barrels which contained waste solutions for a number of years, was quite impregnated with silver, some barrels yielding as many as thirty ounces of metal; so when yours are unfit for further use you know what to do with them.

"Last, but not least, do not send small lots of waste to be refined, but wait until you have a reasonable quantity, for expenses and charges are then comparatively less.

"We have, beyond doubt, the largest facilities for smelting, and do more in that line than any one house. Our charges are very reasonable, to which hundreds will testify, and, as we make quick and honest returns, it will be for your benefit to give us a trial."

Respectfully yours,

CHAS. COOPER & Co.,

Office, 194 Worth Street, New York.

Works at Newark, N. J.

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## ON RED AND PURPLE CHLORIDE, BROMIDE, AND IODIDE OF SILVER; ON HELIOCHROMY; AND ON THE LATENT PHOTOGRAPHIC IMAGE.\*

BY M. CAREY LEA,  
Philadelphia.

### PART I.

IN this series of papers it will be my object to show:

(1) That chlorine, bromine, and iodine are capable of forming compounds with silver, exhibiting varied and beautiful coloration—peach blossom, rose, purple, and black; that these compounds (except under the influence of light) possess great stability; that they may be obtained by pure chemical means, and in the entire absence of light.

(2) That of these substances the red chloride shows a tendency to the reproduction of colors. It seems not improbable that the material of the infinitesimally thin films obtained by Becquerel, Niepce de St. Victor,

Poitevin, and others, in their experiments on heliochromy, may be the red chloride.

(3) That these substances, formed by purely chemical means, constitute the actual material of the latent or invisible photographic image; which material may now be obtained in the laboratory, without the aid of light, and in any desired quantity. They also form part of the visible product resulting from the action of light on the silver haloids.

For more than a generation past the nature of the latent photographic image, that which forms the basis of development, has been in dispute. Two theories have been maintained. According to the one, the first effect produced by light is simply a physical change, predisposing the elements of the silver haloid to dissociation; so that when a reducing agent is applied, the molecules so affected yield more quickly to its influence. According to the other theory, the invisible image is formed of a sub-salt (sub-chloride) etc.). Observations which I published many years ago led me strongly to the first-mentioned of these theories. But of late years results have been obtained not easily reconcilable with it. On the other hand, the theory that the latent image is formed of sub-salt is opposed to striking facts. Silver sub-chloride, for example, is an unstable substance, quickly destroyed by dilute nitric acid. But I have formed a latent image on silver chloride, and after exposing it for five minutes to the action of strong nitric acid (sp. gr. 1.36), have developed the image without difficulty; the same with silver bromide. Evidently these images, which so strongly resisted the action of undiluted acid, could not be formed of simple sub-chloride and sub-bromide of silver, substances quickly destroyed by it.

In the desire to find a satisfactory explanation of the nature of the image, based on adequate chemical proof, I have devoted nearly three years of laboratory work to this and to closely allied subjects. I am led to the conclusion that neither of the older views is correct.

A truer theory seems to be deducible from the result of some experiments which I published in 1885, to the effect that the silver haloids were capable of uniting with

\* The American Journal of Science for May, 1887 (Third Series, vol. xxxiii. p. 349).

certain other substances, much in the same way that alumina forms lakes. When a silver haloid was precipitated in the presence of certain coloring matters, they combined with it, and though soluble in water, they could not be subsequently washed out. They had formed a somewhat stable compound, although the proportion of coloring matter was very small in comparison with the haloid; evidently much too small to represent a stoichiometrical composition.

Now I find a silver haloid may, in the same way, unite with a certain proportion of its own sub-salt, which, by this union, quite loses its characteristic instability, and forms a compound of great permanence.

Another explanation is possible. The sub-salt may combine with the normal salt, not in the manner above described, but in stoichiometrical proportion, and this compound may be diffused through ordinary silver haloid. I have not been able to find any reaction decisive between these explanations, but the general behavior of the substance seems rather to indicate the first-named explanation as the true one. (Silver chloride may be dissolved out by hot solutions of sodium or ammonium chloride, but the sub-chloride is at the same time decomposed. See beyond under head of "Reactions.") When the red chloride, for example, has been boiled with dilute nitric acid for a few moments, to eliminate any uncombined sub-chloride, the proportion of sub-chloride left has never exceeded eight or nine per cent. in over thirty specimens analyzed. If we took this to represent a compound in equivalent proportions, we should have to suppose the union of at least twenty equivalents of  $\text{AgCl}$  with one of  $\text{Ag}_2\text{Cl}$ , which is improbable. If we suppose that these colored substances, containing from less than one-half per cent. up to eight or nine per cent. of  $\text{Ag}_2\text{Cl}$ , consist of a compound of one equivalent of sub-chloride united to a small number of equivalents of normal chloride, then it would be improbable that specimens could not be obtained containing a larger proportion of this compound, and consequently of  $\text{Ag}_2\text{Cl}$ ; but, as already said, specimens containing more than nine per cent., after thorough treatment with nitric acid to remove the uncom-

bined sub-chloride, I have never obtained; generally the amount is less.

Even when silver chloride, bromide, or iodide contains as little as half of one per cent. of sub-salt combined, its properties are greatly changed. It has a strong coloration, and its behavior to light is altered. Even a much less quantity, one inappreciable to analysis, is capable of affecting both the color and the behavior to light.

It is one of these latter forms of this substance that constitutes the actual material of the latent photographic image; adequate proof of this will be given in the second part of this paper.

#### RED SILVER CHLORIDE.

Of the three haloids, the chlorine salt is the most interesting, because of its relations to heliochromy; it is also the most stable of the three compounds, and exhibits perhaps a finer variety of coloration, though the bromide and iodide are also obtainable of very beautiful tints. The chloride shows all the warm shades from white to black through the following gradations—white, pale flesh color, pale pink, rose color, copper color, red purple, dark chocolate, black.

These compounds are obtained in an endless variety of ways—by chlorizing metallic silver; by acting on normal chloride with reducing agents; by partly reducing silver oxide or silver carbonate by heat, and treating with  $\text{HCl}$ ; by forming sub-oxide or a sub-salt of silver, and treating with  $\text{HCl}$  followed by nitric acid; by acting on sub-chloride with nitric acid or an alkaline hypochlorite, etc.; by attacking almost any soluble salt of silver with ferrous, manganous, or chromous oxide, etc.; by reducing silver citrate by hydrogen, and treating it with  $\text{HCl}$ ; by treating a soluble silver salt, or almost any silver solution, with potash or soda, and almost any reducing agent, cane-sugar, milk-sugar, glucose, dextrine, aldehyde, alcohol, etc., and supersaturating with  $\text{HCl}$ ; there is no organic, easily oxidizable substance that I have tried that has failed to give this reaction. Also almost any salt of silver exposed to light, treated with  $\text{HCl}$ , and then with hot, strong nitric acid, yields it. Almost any of these classes represents a long range of reactions, each susceptible of

endless variation. In fact, the more the matter is studied, the more extended the range of reactions is found to be that give rise to the formation of this substance. To show how slight an influence will lead to the production of red chloride instead of white: if freshly precipitated argentic oxide is mixed for a few moments with starch or tragacanth paste, and is then treated with HCl, the result is, not white, but pink silver chloride. Even raw starch flour mixed with silver oxide will in a few moments cause it to give a pale flesh-colored chloride with HCl. Boiled starch or tragacanth paste does this more quickly, and acts more strongly, even if cold, and still more if heat is applied.

Although red is probably the most characteristic color of this substance, so that I have spoken of it above as red chloride, nevertheless this hardly seems a proper name for a substance that is often purple, chocolate, or black, sometimes brown or even ochrous, sometimes lavender or bluish, and is probably capable of assuming every color of the spectrum. To call it argento-argentic chloride would infer a stoichiometrical composition that, as already mentioned, seems very uncertain, too much so to serve as the basis of the name. Therefore, and as these substances have been hitherto seen only in the impure form in which they are produced by the continued action of light on the normal salts, it might be convenient to call them photo-salts, photo-chloride, photo-bromide, and photo-iodide, instead of red or colored chloride, etc., and thus to avoid the inexactness of applying the term red chloride to a substance exhibiting many other colors.

#### PHOTO-CHLORIDE BY ACTION OF ALKALINE HYPOCHLORITES.

Black or purple-black chloride is easily obtained by the action of an alkaline hypochlorite or finely divided silver, such as is obtained by reduction in the wet way. Commercial sodium hypochlorite may be used to act on it. It is to be poured over the silver, and, after standing a few minutes, is to be replaced with fresh. After an hour or two this is again to be replaced with a new por-

tion, which is to be allowed to act half an hour to insure the total conversion of the silver. The product varies somewhat in color, is sometimes black, oftener purple-black. If the treatment with hypochlorite has been thorough, strong cold nitric acid of 1.36 sp. gr. extracts from it no silver. This reaction with nitric acid is important, as it shows that not only metallic silver was not present, but that the product contained absolutely no uncombined sub-chloride; for if any were present it would instantly be decomposed by the acid, in which one-half of its silver would dissolve. The action, therefore, appears to take place in this way. First, sub-chloride is formed; part of this is further chlorized into normal chloride, which at once combines with other sub-chloride, thus taking it out of the further immediate action of the hypochlorite, and this goes on until an equilibrium is reached, and neither metallic silver nor uncombined sub-chloride is left, as is proved by the action of nitric acid. Alkaline hypochlorite, as will presently be shown, attacks uncombined sub-chloride very rapidly, the combined very slowly. By many days' contact the quantity of combined sub-chloride is gradually reduced.

Prolonged treatment with hot, strong nitric acid destroys all the varieties of photo-chloride. The time needed varies a good deal. A specimen of that obtained with hypochlorite required twenty-five hours' heating with acid of 1.36 in a water-bath at 212° F., to bring it to the condition of white normal chloride. Considering that cold, dilute nitric acid instantly destroys freshly precipitated argentous chloride in the free state, this long resistance to strong acid at the temperature of boiling water must be considered most remarkable.

When the red or photo-chloride is formed with the aid of a ferrous salt or ferrous oxide, I prefer to boil the product with dilute HCl to get rid of the last traces of iron, after a preliminary treatment with hot dilute nitric acid has removed silver and uncombined sub-chloride. The photo-chloride will sometimes even resist boiling aqua regia for a time.

Protected from light, photo-chloride is perfectly stable. Specimens obtained

eighteen months ago appear to be quite unchanged.

When treated with ammonia, it is far more slowly attacked than the normal. The ammonia dissolves the normal chloride only. The union between the two must, therefore, be broken up, and this takes place slowly. The first action of the ammonia is to change the red or purple color to greenish black, and then to slowly dissolve out silver chloride. Hours are required, even with a large excess of ammonia. Whilst this is going on, if the ammonia is poured off and replaced with nitric acid, the original color reappears. If the action is continued sufficiently long, silver only remains, and dissolves readily in nitric acid. A little short of this treatment with nitric acid leaves a black residue of dark chloride mixed with metallic silver; the dark chloride being insoluble in any acid has led to some strange mistakes in a similar reaction which occurs in treating with ammonia silver chloride that has been exposed to the light. Even a theory has been had recourse to of a "passive condition" of silver. This passive silver is simply black chloride.

A specimen of purple black chloride was treated with warm, strong aqua regia until whitened by conversion of the sub-chloride to normal.

By this treatment 2.563 grains of photo-chloride gained 9 milligrams, indicating the presence of  $2\frac{1}{2}$  per cent. of sub-chloride, or, more exactly:

Sub-chloride . . . . .	2.49
Normal chloride . . . . .	97.51

This is not to be taken in any sense as representing a constant composition. The proportion of sub-chloride varies between certain limits, not only according to the method of preparation used, but independently of it. Another specimen of black chloride formed with hypochlorite gave figures that indicated a content of less than half of one per cent. of sub-chloride

#### PHOTO-CHLORIDE BY REDUCTION OF NORMAL CHLORIDE.

This is an excellent means of obtaining red chloride. The white chloride is to be dissolved in ammonia, and ferrous sulphate

added, producing an intensely black precipitate. After standing a minute, the mixture is to be treated with dilute sulphuric acid until it shows a strong acid reaction.

The precipitate is to be first well washed by decantation, then boiled first with dilute nitric, then, after washing, with dilute hydrochloric acid, which must, of course, be thoroughly washed out.

The product obtained in this way is often of singular beauty. It might easily be taken for metallic copper. Sometimes it is as rich and bright in color as the copper obtained by electric deposition. Everyone knows the richness and brilliancy of that form of copper, and I have seen it fully equalled by this silver salt.

The beauty of the color depends always on the thorough removal of any metallic silver that may be present, and still more in getting rid of every trace of iron. The boiling with dilute hydrochloric acid should be continued until, after thorough washing, a fresh treatment extracts no more, and the acid remains colorless in presence of alkaline sulphocyanide.

Instead of an ammoniacal solution of silver chloride, we may make a solution of any other silver salt in ammonia, and reduce it in the manner just described with ferrous sulphate. But, in this case, hydrochloric acid must be used instead of sulphuric after the reduction. This single reaction includes an almost endless variety of methods. The acid with which the silver was originally combined seems to be not without influence in the result; in some cases, for example, with arseniate and molybdate, the action of colored light on the red chloride seems to be somewhat modified. Silver phosphate, on account of the ease with which it suffers reduction, is very well adapted for this treatment.

#### PHOTO-CHLORIDE BY PARTIAL REDUCTION OF OXIDE BY HEAT, AND TREATMENT WITH HCl.

This method has the advantage of avoiding all admixture of foreign substance, the last traces of which are very hard to get rid of, and seem to exert an effect on the color disproportionate to their quantity. Accord-

ingly the photo-chloride obtained in this way is very beautiful; the shades are from pink to copper red, and a tint resembling burnt carmine.

Heat may be applied to the oxide in either of two ways—long-continued heat at 212° F. or near it; or the change may be effected by roasting.

When slow heat is to be applied, care must be taken that the oxide does not carbonate itself, which it easily does superficially; this is an objection, because the carbonate under these circumstances yields white chloride, with which the other becomes mixed. The air of a drying oven heated by a gas-burner is especially bad in this respect. I have seen a surface of oxide form a coat of yellow carbonate in a few hours in this way. (Most oxide that has been kept some time will effervesce briskly with an acid.) The method is uncertain, sometimes giving strongly colored products, and sometimes pale pink.

The oxide may be roasted in a shallow flat-bottomed porcelain basin. With a very moderate heat it changes from brown to black. When this is thoroughly accomplished, and before gray reduction sets in, the oxide is to be treated with HCl. If this be done in the basin itself after cooling, and without disturbing the position of the oxide, a curious variety of tints will be noticeable, depending upon slight differences in the heat affecting different portions.

*Silver carbonate* may be roasted in the same way as silver oxide and yields a similar product. By heat its color changes from yellow to black; it is probable that the carbonic acid is driven off at a lower temperature than that at which oxide is reduced to silver, and that with it escapes part of the oxygen. The residue is converted by HCl into deep red chloride.

#### ACTION OF VARIOUS METALLIC OXIDES ON SILVER OXIDE.

If we precipitate ferrous oxide with potash, and add to this silver oxide—or, what amounts to the same thing, if we add to ferrous sulphate potash in excess, and pour over this silver nitrate solution—the silver oxide separated by the potash is partly reduced by the ferrous oxide, and when

treated with HCl forms red chloride, the intensity of the color of which depends, within certain limits, on the amount of reduction of the silver oxide.

Similarly, if we treat solution of manganeous sulphate with excess of potash, and then add silver solution, we get an analogous reaction, except that it is much weaker, and heat is necessary.

With chromous oxide the action is still weaker, but evident. With cobaltous oxide it is scarcely perceptible without heat and long-continued action.

#### ACTION OF FERRIC CHLORIDE ON METALLIC SILVER.

It has been long known that silver was blackened by ferric chloride, and this action has been proposed in the text-books as a means of obtaining sub-chloride, for which it is quite unsuited.

Ferric chloride acts on silver much as sodium hypochlorite does, but less rapidly. With hypochlorite the action is complete in a few hours, or often in an hour or less; with ferric chloride one or two days are required before the product ceases to yield silver to hot, dilute nitric acid. In both cases the action seems to be alike in this: that no sub-chloride is finally left uncombined with normal chloride.

The product is an intensely dark purple black when the action takes place in the cold. With heat continued for many hours, ferric chloride can be made to attack the purple salt, and gradually convert it into AgCl. With a strong solution in large excess, kept at or near 212° F. for sixty hours, the color was gradually reduced to pink, and finally to a dingy pinkish gray. Pure white cannot be obtained, as it can by aqua regia.

In order to observe more exactly the course of the action, a strong solution of ferric chloride was allowed to act on reduced silver in fine powder for four minutes, and then a fresh portion (always in large excess) for the same time. Analysis showed that at this stage of the action the material contained:

Ag (determined)	. . . .	76.07
Cl (by difference)	. . . .	23.93

If we suppose that all the silver was combined with chlorine, the constitution of the substance would be :

AgCl . . . . .	92.49
Ag <sub>2</sub> Cl . . . . .	7.51
	100.00

But this was probably not the case ; there was almost certainly free silver present, and consequently a less proportion of sub-chloride. Another specimen, treated repeatedly with hot acid until every trace of free silver was removed, was found to contain 1.52 per cent. of sub-chloride, color purple. Another similarly treated contained 7.3 per cent. of sub-chloride.

ACTION OF NITRIC ACID ON SILVER  
SUB-CHLORIDE.

When freshly precipitated and still moist sub-chloride of silver is treated with nitric acid, a sharp effervescence, accompanied with a disengagement of red fumes, sets in ; presently the strong red coloration of the photo-chloride appears, and the action ceases. This production of the red and not the white chloride in the decomposition of Ag<sub>2</sub>Cl is precisely what might have been expected, for when AgCl is formed in the presence of Ag<sub>2</sub>Cl, more or less combination always takes place.

The action is interesting in this respect : the AgCl first formed is, at the moment of formation, in presence of all the yet undecomposed portion of Ag<sub>2</sub>Cl, and whatever part it combines with is removed from the action of the acid. It would, therefore, seem probable that this method would be one of those that yielded a product having the largest proportion of Ag<sub>2</sub>Cl, but analysis showed that different specimens were extremely variable ; of those analyzed, one contained 8.62 of Ag<sub>2</sub>Cl, another 6.56, and a third 1.96. All that analysis can do with such substances is to fix the limits within which they vary. The quantity of sub-chloride left after treatment with nitric acid depends partly on the strength of the acid and the time for which it is allowed to act, but also, to some extent, on variations in the resistance of the substance itself. These specimens were of shades between rose and purple.

The color of any particular specimen is always lightened in shade by abstracting Ag<sub>2</sub>Cl from it by continued boiling with nitric acid. But as between different specimens—especially when formed by different reactions—it by no means follows that the darkest in color contains the most sub-chloride.

Argentous chloride, when treated with sodium hypochlorite, yields a purple form of photo-chloride. A specimen so treated contained 2.57 per cent. of Ag<sub>2</sub>Cl.

ACTION OF CUPRIC CHLORIDE ON SILVER.

When metallic silver is submitted to the action of either cupric chloride, or, what gives the same result, a mixture of copper sulphate and ammonia chloride, an action takes place very similar to that of ferric chloride, but more energetic, and the resulting red chloride is apt to be lighter in shade, though in this respect it varies very much. As in the case of ferric chloride, this action of cupric chloride on silver is given in some text-books as a means of obtaining argentous chloride, for which purpose it is as little suited as the iron salt.

As a mode of obtaining the red chloride it is not to be recommended. It is troublesome to get the copper completely removed.

A specimen analyzed was found to consist of white chloride with 6.28 per cent. of sub-chloride.

ACTION OF PHOTO-CHLORIDES ON SILVER  
SOLUTIONS.

*Cuprous Chloride.*—When very dilute solution of silver nitrate is poured over cuprous chloride, a bulky black powder results, which by boiling with dilute nitric acid turns red, the acid extracting little or no silver.

*Ferrous Chloride.*—When silver nitrate is dissolved in a slight excess of ammonia, and this solution is poured into a strong one of ferrous chloride, there results a precipitate which is sometimes grayish, sometimes olive black. By washing with dilute sulphuric acid, this product becomes brownish purple, and brightens by boiling with dilute nitric acid. It was found to contain 4.26 per cent. of sub-chloride.

PHOTO-CHLORIDE BY ACTION OF  
HYDROGEN.

When hydrogen is passed over argentic citrate at 212° F., as in Wohler's process, there results a black or dark brown powder, consisting of argentous citrate, metallic silver, and, perhaps, other substances. When this is treated with hydrochloric acid, and subsequently with nitric, the resulting product is photo-chloride, the characteristic color of which sometimes appears as soon as the HCl is added. But more frequently the material after the action of HCl has precisely the appearance of silver reduced in the wet way, and the red color appears only after treatment with nitric acid. Even cold dilute acid (by some hours' contact) will isolate the red chloride; boiling acid does so at once.

Color, beautiful purple. A specimen analyzed was found to consist of normal chloride combined with 3.11 per cent. of sub-chloride.

PHOTO-CHLORIDE BY ACTION OF POTASH  
WITH OXIDIZABLE ORGANIC SUB-  
STANCES.

There is no better method of obtaining photo-chloride than by acting on a salt of silver with potash and certain organic substances. Milk sugar, dextrine, and aldehyde give particularly good results. Milk sugar acts rapidly, dextrine slowly. Other substances with which, combined with potash, I have obtained chloride, are gum, tannin, gallotannic acid, manna, glycerine, alcohol, carbolic acid, etc. The number might, doubtless, be indefinitely multiplied. After the action has reached a proper stage which, with milk-sugar, is apt to be in less than a minute, and with dextrine may take half an hour—HCl is added, whereupon the precipitate changes in appearance, but does not exhibit its characteristic color until after boiling with nitric acid; the best result is obtained when the precipitate, after addition of HCl, has a rich chestnut brown shade,\* which, by nitric acid, changes to

\* A specimen in this stage and before treatment with nitric acid was found to contain 92.68 per cent. of silver, showing it to be a mixture of metallic silver with chloride and subchloride.

shades of purple and burnt carmine when milk-sugar, dextrine, or aldehyde has been the reducing agent. When the salt of silver employed has been the chloride, of course treatment with HCl is superfluous.

A specimen obtained by acting on silver nitrate with potash and dextrine was found to contain 2.26 per cent. of subchloride; another, obtained with silver nitrate, potash, and milk-sugar, contained only 0.34 per cent. As in former instances, these determinations are useful only in indicating the extreme variability of these substances, and their approximate limits of composition.

OTHER REACTIONS LEADING TO THE FOR-  
MATION OF PHOTO-CHLORIDE.

A few more instances are here added, indicating the variety of ways in which this product may be obtained.

The following is an interesting reaction. If a solution of ferrous sulphate is made strongly acid with HCl, and solution of silver nitrate added, the silver is thrown down as white chloride; but if to the silver solution is first added a little ammonia, enough to redissolve the oxide, but much less than enough to neutralize the acid added to the iron solution, then, on pouring the silver solution into the iron, the silver falls as red chloride. So obtained, it has at first a dull purple shade, but by purification, as before described, a good product is obtained. This method, however, scarcely tends to the production of the splendid copper-red shades of color that are got by acting on silver chloride dissolved in ammonia with ferrous sulphate, and then adding dilute sulphuric acid. The shade of color shown by any particular specimen is always of interest, because, as before mentioned, it modifies the effect exerted upon it by the spectrum.

*Potassioferrous oxalate.* This now well-known oxalate developer, which I described some years ago, throws down from silver nitrate a black powder; this precipitate treated with HCl scarcely alters in appearance, but, washed and boiled with dilute nitric acid, changes to a deep purple.

*Pyrogallol* is capable of leading to the formation of photo-chloride. When ammoniacal solution of silver nitrate is poured



into solution of pyrogallol in water made strongly acid with HCl, in such proportion that the mixed solutions remain strongly acid, there falls a grayish product, which, by washing and treatment with hot dilute nitric acid, becomes bright pink.

*Ferrous oxide* differs essentially in its action on silver solutions from ferrous sulphate. A silver nitrate solution added to one of ferrous sulphate precipitates gray metallic silver. But if potash or soda is first added to the ferrous solution, and then silver nitrate, followed by HCl, the red chloride is formed abundantly. This reaction is similar to that already described, in which an ammoniacal solution of silver is added to one of ferrous sulphate.

To the same class of reactions belong the following: silver carbonate with excess of sodium carbonate is thrown into solution of ferric sulphate, and after standing a few minutes HCl in excess is added. The silver is converted into red chloride.

It seemed possible that silver itself might be made the means of reducing its chloride. The experiment was made in this way. Freshly precipitated and still moist chloride was intimately mixed with metallic silver in the powder and a little water. This was heated till the water boiled, and nitric acid was added. After the action was over, the chloride had assumed a deep pink color. A similar result is obtained without the aid of heat, but the resulting color is much paler.

Analogous to this is the following. When a cake of fused silver chloride in a crucible is reduced with dilute sulphuric acid and zinc, if the reaction is interrupted when not quite finished, and the metallic silver is dissolved out with hot nitric acid, the residue of silver chloride will be found to be pink.

When HCl is brought into contact with Ag, together with an oxidizing agent, such as a bichromate or a permanganate, it gives rise to formation of colored chloride. These I have not specially examined, but there can be little doubt that they are identical in nature with the foregoing. So, too, when silver in contact with mixed potassium chloride and chlorate is cautiously treated with dilute sulphuric acid.

The reactions above described will serve to show under what a vast variety of conditions the photo-salts are formed. Most of the methods here described represent each a whole class of reactions, all resulting in the same general way, and these classes might, doubtless, be largely added to. Almost any silver solution brought into contact with almost any reducing agent, and then treated with HCl, gives rise to the formation of photo-chloride. Almost any chlorizing influence brought to bear on metallic silver has the same result; or, when silver is brought into contact with almost any oxidizing agent and HCl. It may be said without exaggeration that the number of reactions that lead to the formation of photo-chloride is much larger than those leading to production of normal chloride.

#### REACTIONS OF PHOTO-CHLORIDE.

Exposed to ordinary diffused light, all the bright shades of silver photo-chloride quickly change to purple and purple black. The darker shades are more slowly influenced.

Mercuric chloride gradually changes it to a dirty white.

Mercuric nitrate dissolves it easily and completely, but apparently with decomposition, as it can only be recovered as white chloride. Potassic chloride seems to be without effect.

Potassic bromide soon converts it to a dull lilac which, at the end of twelve hours, showed no further change.

In contact with potassic iodide, the color instantly changes to blue-gray. This change is produced by a quantity of iodide, too small to dissolve even a trace of silver. The filtrate is not darkened by ammonium sulphide. With a larger quantity silver is dissolved abundantly. By acting with renewed iodide solution, the substance continually darkens and diminishes until only a few black points, barely visible, are left.

Treated with dilute solution of potassium chlorate and HCl, the red substance gradually passes to pink, to flesh-color, and finally to pure white.

The action of heat on the photo-chloride is very curious; its tendency is generally

toward redness. Specimens appearing quite black are rendered distinctly purple or chocolate by heating to 212° F. in a drying oven. Often, when the substance first separates by addition of HCl, it is pure gray. This gray will often be changed to pink by simply heating to 212°. (This happens when a gray form is produced; if the grayness is due to admixed metallic silver, it is only removed by boiling with nitric acid.)

The somewhat surprising change of color which is often seen when the crude substance is boiled with nitric acid (sometimes from dull, dark gray to crimson) is due to three concurrent actions—that of the mere heat, the removal of the silver, and the breaking up of uncombined subchloride.

It is not possible to dissolve out the normal chloride by a solvent like ammonium chloride from the photo-chlorides, leaving the subchloride behind. When red chloride is boiled with successive portions of strong solution of ammonium chloride in large excess, the material gradually diminishes until, if the operation is continued long enough, there remains a small residue of a warm gray color, which consists of metallic silver, and dissolves without residue in nitric acid.

If sodic chloride is substituted for ammonium chloride, the same result follows, except that the operation is greatly more tedious. If persevered in until the hot solution no longer removes traces of silver chloride, the residue consists of nothing but metallic silver.

#### ACTION OF LIGHT ON NORMAL SILVER CHLORIDE.

When silver chloride, precipitated with excess of HCl, is exposed to light, it becomes with time very dark. Cold, strong, nitric acid, 1.38 specific gravity, extracts a trace only of silver.

The principal action of light on AgCl (precipitated in presence of excess of HCl) consists in the formation of a small quantity of subchloride, which enters into combination with the white chloride not acted upon, forming the photo-chloride, and thus is able to withstand the action of strong nitric acid. At the same time a trace is

formed, either of metallic silver, or of uncombined subchloride—it is impossible to say which. After a certain very moderate quantity of subchloride is formed, the action of light seems to cease. This cessation has been noticed by many observers, perhaps most exactly by Dr. Spencer Newbury.

The nature of the product formed by the continued action of light on silver chloride seems to support the conclusion that the subchloride is combined with the whole of the normal chloride after the manner of lakes rather than in equivalent proportions. If the latter were the case, it seems probable that the continued action of light would extend to much greater decomposition than it is found to do.

The action of light in the formation of the so-called latent image will be examined in the second part of this paper.

#### PHOTO-BROMIDE AND PHOTO-IODIDE.

It has been already mentioned that bromine and iodine form with silver combinations in all respects analogous to those of chlorine. They are less stable than it, and consequently the number of reactions that lead to their production is somewhat more limited. Each, however, is formed in a great variety of ways, and with the same ease as the chloride. In color they are for the most part indistinguishable from it, but exhibit different reactions.

#### RELATIONS OF PHOTO-CHLORIDE TO HELIOCHROMY.

The photo-chloride was examined both with the spectrum and under colored glass.

The rose-colored form of photo-chloride was that which gave the best effect. In the violet of the spectrum it assumed a pure violet color; in the blue it acquired a slate blue; in green and yellow a bleaching influence was shown; in the red it remained unchanged. The maximum effect was about the line F, with another maximum at the end of the visible violet, less marked than the one at F.

Under colored glass the colors obtained were brighter; under two thicknesses of dark ruby glass the red became brighter and richer. Under blue glass some specimens gave a fair blue, others merely gray. Under

cobalt a deep blue was easily obtained, and under manganese violet, a fine violet, very distinct in shade from the cobalt. Green produced but little effect; yellow was sometimes faintly reproduced, but rarely. But the yellow glass of commerce, even the dark yellow, lets through portions of nearly the whole spectrum, as can readily be seen by testing it with the spectroscope.

The dark purple forms of chloride do not give as good results as the rose and coppery shades. These last have many points of resemblance with the material of Becquerel's films, resemblance of color, probably of composition, as far as we can judge of the constitution of those films from their origin. They were far too attenuated to admit of analysis, and resemblance in the curious way in which their color is affected by heat, so that the conclusion seems inevitable that they are at least closely related.

There is certainly here a great and most interesting field for experiment; hardly any two specimens of photo-chloride give exactly the same results with colored light and this suggests great possibilities. There is the very great advantage in this method over any previous, that the material is easily obtained in any desired quantity, and in a condition most favorable for experiment.

The action of light on photo-chloride can be a good deal affected by placing other substances in contact with it. Any substance capable of giving up chlorine seems to influence the action somewhat; ferric chloride often acts favorably, also stannic and cupric chlorides.

Evidently an important point in all heliographic processes is, that white light must be represented by white in the image, it is an essential condition that white light must exert a bleaching action on the sensitive substance employed. Red chloride does not bleach, but darkens in white light; but the property of bleaching, to a very considerable extent, may be conferred on it by certain other chlorides, and particularly by lead chloride and zinc chloride.

This I look upon as very important.

Another matter of interest is exaltation of sensitiveness, and this I find is accomplished in quite a remarkable way by

sodium salicylate, the presence of which at least trebles the action of light on these substances, and probably on others.

I am persuaded that in the reactions which have been here described lies the future of heliochromy, and that in some form or other this beautiful red chloride is destined to lead eventually to the reproduction of natural colors.

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## SOME MORE REASONS FOR OPTIMISM.

BY D. BACHRACH, JR.

(Continued from page 359.)

HAVING, I think, demonstrated in my former article, that the results of the degradation of prices and intense competition of the past five or six years do not support the cry that the large establishments can crush out the small ones in our profession, even at the very lowest prices for work, it will not be very difficult to show how that fact, once thoroughly understood, will tend to raise prices again. But first it must be remembered that I have made the comparison under the supposition that the small establishment starts under the most unfavorable conditions, and in direct competition at the start, with the large one. But let us just imagine the result (and, in fact, my observations are drawn from results I have witnessed for years) when the "other man" starts entirely away from the centre of business activity in a large city, and works up a local patronage near some centre of population toward the outskirts. In this city, the steadiest business with the least expense, among the medium class of photographers, is done by two men, one at either end of the city, far away from the centre—one of them, in fact, not even on a business thoroughfare. I know of numbers of such cases elsewhere, and this points out the way to men of merit, by which they can, if they have patience, compete on the most advantageous terms with the large establishments. People who have children *will take them close to their own neighborhood*, if a competent photographer establishes himself there, and they will even pay a little more money for the convenience. I have often heard my patrons

make the remark when I first started (being the only photographer in the neighborhood): "Oh, I can get pictures cheaper at Mr. —'s, but I would rather not go that far." As I have proved that the "branch" business does not pay in our profession, here is a sure method of avoiding the competition of the large studios, and, in fact, of making direct inroads on the local patronage of such establishments.

But to return to the subject of raising prices. After some years of this cut-throat competition, the large "Cheap Johns" are awaking to the fact that the "other man," by adopting their cheap prices, has again got his share of the patronage, the rush is over with them, the "boom" is gone, and the dismal fact of low prices and poor business stares them in the face. What is left? Sell out or raise prices. But the latter they are afraid to attempt. The idea of improving their work and raising their standard comes very slowly. But some of the "other men" are still more tired of working for a bare living, when men in other occupations get far more for less energy and ability. The good photographer having successfully fought the large "Cheap John," has more backbone, however. He knows his work has improved, while that of his opponent has probably gone backward, as is almost sure to be the case with two such classes of men. So he ventures to raise his prices a little, finds that most of his patrons will not leave him, and then tells his comrades of his success. Others of the same class finding it out, also take courage and try it, and so the thing has worked in some places and will continue to work. Photographers who work actively at their profession, and are not mere hucksters and purveyors of windy advertisements, want fair prices for their work, and will obtain them as soon as they can; while the "Cheap John," who feels that only "cheapness" and constant lying advertisements are his stock in trade, dare not raise his prices, even if he would. Should he be wise enough to wake up to the fact that it is the superior *work* of the others that has got ahead of him, he will find on attempting to imitate them, that he must also charge higher prices. Good work cannot be done with cheap and inferior

assistants. Now this process of gradual improvement must necessarily take place unless all signs fail. If, instead of a lot of men who have no business ability, and who imagine they are going to the almshouse every time a customer goes away without purchasing, our profession were composed of shrewd, long-headed business men, as well as good artists, they would adopt the methods of other trades and professions, and come to the conclusion that reasonable coöperation is better than ruinous competition, and the best of them will combine on some satisfactory basis, put a limit to cutting, and awake to the fact that they have acted long enough the rôles of philanthropists to the public, giving them their work at half-price, and particularly as the public never demanded it, but sensibly took what was offered.

A careful comparison of prices in Germany and England, as compared to our prices here, will show that over-crowded populations and trades do not necessarily tend toward low prices for good work, but that the latter condition is due to the rapacity of a few unprincipled charlatans among the profession in this country.

In concluding these articles on the degradation and prospective gradual improvement of photography, in a professional sense, it would be unjust to omit the very important part played by the "cheap outfit" raid precipitated upon us about the same time by the rapacity of manufacturers. Whoever was responsible (if any one person was) for the introduction of the wooden junk known as five- or ten-dollar outfits, ought to be held up to the execration of the craft. The thinness of the excuse that it cultivated the taste of the public by introducing amateur photography on a large scale, is too apparent to need answering. It has almost utterly eliminated the better class of photographers from landscape and out-door work.

The country is overcrowded with itinerant and tramp photographers who were induced by the vaunted advertisements of "photography made easy," "only ten dollars for an entire outfit," to enter the field as competitors and flood the country with their trash, until the public look upon it as a tin-peddler's business. Just imagine the effect

these black wooden junk boxes made upon those who were wont to look upon photography as something refined and artistic, and especially when, in the hands of boys and girls, the productions were apparently like those made with the best apparatus! And, after a short while, most of these people got tired of the toy, and having never learned the true merit of really fine work, now look upon the whole science as a sort of mountebank business. The manner in which some of these boys would come around, ask the price of *developing plates and getting prints made*, and then in a supercilious manner tell us that was too much profit on the paper, silver, and cardboard, and say their work was just as good as any "profesh," was a caution; but the manner in which we marched them out was not a caution, but emphatic. The true amateurs, who are an honor to our profession, did not need this degraded junk business as an inducement to practise the art; they never bought such trash, and were as much degraded as the professionals by the introduction of this horde of mis-called photographers. In England, where dry plates flourished years before they were generally introduced here, such methods only took root from the American example. It is sad and mournful that photography as a profession should have been stabbed in the house of its friends, by the very men who were enriched and supported by professional photographers. I have no patience with the excuses made. *It is and was an inexcusable and indefensible degradation, with scarcely a grain of benefit to relieve it.* How has it helped us? Have our journals been better supported since? Has the quality of our work bettered, or profits increased thereby? Or have a few of our manufacturers merely been benefited for awhile? I will leave the answer to others.

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### INSTANTANEOUS PHOTOGRAPHY WITH MAGNESIUM LIGHT.

BY DR. H. W. VOGEL.

INSTANTANEOUS photographs are now constantly being produced by every amateur, so that when taken in the ordinary way by daylight there is nothing in them

to excite special attention. Instantaneous photography by artificial light, however, is quite a new departure, and, as shown at the last meeting of the Berlin Society for the Advancement of Photography, by Messrs. Gädicke and Miethé, the process excited much interest among the fraternity.

Mr. Gädicke stated that the inventors of the process had been for the last six months engaged in working it out, but had only now arrived at the point where it might be considered as practical. They used magnesium, but had abandoned the slow burning wire for the metal in a powdered state, and this in mixture with salts containing oxygen—*i. e.*, chlorate and nitrate of potassium. This had been done by many previously, but hitherto without complete success. The essence of the process is the employment of a mixture producing such a brilliant light and burning so rapidly as to permit the photographing instantaneously of living objects. Instantaneous pictures produced by this process had been shown by Mr. Gädicke at the meeting held on March 11th, but no one had guessed the means by which they had been produced, although a lively interest was displayed by the members. The method employed was first experimentally shown by Mr. Gädicke at the meeting of the 15th of April, since when others have followed in the same path, the first to do so being E. Vogel, Jr.

The discovery of Gädicke and Miethé is, in fact, like the egg that Columbus stood on end. We, ourselves, four years since, experimented with magnesium flash-burning, but did not meet with success. At times the mixture burnt too slowly, and smoked too much. Sometimes the sitters were so much startled by the sudden blaze that we looked upon a successful photograph as out of the question, since the violent movements of the model excluded all hope of a sharp picture. Gädicke and Miethé have, however, shown us that instantaneous portraiture is quite practicable by the means indicated.

Still-life subjects, engravings, etc., have been photographed years since by the light from burning magnesium powder, but for portraits a fresh device was necessary, and this was hit upon by Gädicke and Miethé

by the composition of the mixture for extremely rapid combustion, which they have brought to such perfection that the burning is accomplished in from the one-fortieth to the one-thirtieth of a second. With powder thus prepared they have produced their results. My son also has on a first trial succeeded in taking a photograph of a group of six persons in a drawing-room at 11 o'clock P. M., using two grammes of magnesium powder. The exposure was made with a Steinheil's aplanatic lens, using full aperture at a distance of about three yards from the subject. The sitters were all startled by the sudden glare; nevertheless, the group on development came out perfectly sharp and properly exposed, proving that the movement of the sitters caused by the shock was subsequent to the action of the light upon the plate. On account of the want of a proper reflector the shadow side of the figures was somewhat dark, but by no means hard. The inventors have introduced a very complete arrangement for avoiding fumes, as they showed at the recent meeting of the Society.

The powder was burned in a lantern consisting of a strong flat case with a glass front. The can was impervious to the fumes, so that not a trace of them escaped. The lighting up of the shadows was accomplished by tin-foil reflectors, and the softening of the light was achieved by tissue paper interposed between the blaze and the sitter. In addition to this the speaker indicated another method, for use especially when interiors or large groups have to be photographed. This second method was also experimentally proved by the photographing of a group. The magnesium mixture was burned in a long trough of sheet iron, and, as a protection from direct light, sheets of tissue paper were hung in a line in front of the apparatus. A further toning down of the light may be obtained by using a second or third thickness of tissue paper, and this is so arranged in front of a portion of the line of flame as to diminish its power upon those parts of the subject that are nearest to the light, and so by comparison to better illuminate the part of the subject farthest from the light.

The inventors and I have taken in this

manner a great many instantaneous groups at night time; and they have described their method in a work illustrated by two collotypes from negatives taken in a drawing room with instantaneous magnesium light.

The advantages of the method the authors describe as follows:

"The portrait photographer is enabled by the means described to solve problems that have hitherto been either insoluble or only overcome with the greatest difficulty.

"1. To take portraits either by day or night.

"2. To obtain during dull, heavy weather, especially in dark winter days, a bright, charmingly lighted picture, by strengthening the light with a flash of magnesium light, and so giving piquancy to the illumination.

"3. To take portraits without difficulty in the private houses of their customers.

"4. To take sharp photographs, with certainty, of children and dogs, even in a state of the greatest unrest.

"A point of great importance is that magnesium light may now also be used for photographing interiors, since the whole illumination being concentrated in a moment, the fumes of the magnesium are harmless. They only form and spread when the exposure is over. Dark places may be lit up, and moving persons and things therein found may be instantaneously photographed.

"Amateurs who have no studio erected need now no longer fear to take portrait photographs.

"The importance of instantaneous magnesium photography for all photo-chemical and physical purposes is very evident. We are now in a position, by the addition of sodium, lithium, barium, strontium, and lime salts to our light, to adapt it to the purposes for which color-sensitive plates are used, as copying paintings, and the reproduction of colored objects.

"It also becomes possible to produce instantaneous pictures with the highest magnifying power of our microscopes, and so to carry on researches on physiological actions, on the life of microorganisms, on the formation of crystals, on molecular move-

ments, etc., which have hitherto not been practicable.

"Various other applications to research, and in the arts, will be found; improvements will result therefrom, and that which is useless will be discarded. We, therefore, hope that our labors will not have been in vain. Our mixture, as well as the principle of our method of burning, we have protected by patent."—*Mittheilungen*.

## ZINC ETCHING.

BY RUDOLF SCHERER.

CHEMIGRAPHY started its course across the continent from Vienna and Paris simultaneously, and in both metropoli there is much lively emulation in this respect; however, there exist in these two cities certain differences in the methods of working, and thus it is quite just and proper to speak of a Vienna and of a Paris school. This is not done, though, from local patriotism alone, but with the design of making use, as far as possible, of domestic industries, by the introduction of both methods. Thus in Vienna and Paris, chemigraphy is practised with equal thoroughness and ingenuity; in the one place, however, the work is characterized by simplicity and brevity, in the other, by some complication, and yet the result is, notwithstanding the quickness of one method and the exactness of the other, the same. A comparison of both methods would soon explain this apparent contradiction.

Let us observe, for instance, the beginning of zincography in this case then, the dressing of the zinc plates for etching. In Vienna, the zinc plates are drawn off with a scraper, ground, polished, and very shortly before the etching greased, and for greater safety rubbed over with pumice, oil, or tripoli powder; sometimes, also, a weak acid bath is used. In the Paris atelier this procedure does not suffice. According to Geymet's well-considered description, the zinc plates are bent there as well as by us, drawn off, and smoothly ground, but then a particular and tedious (little time-robbing) procedure of granulation is undertaken. The mineral powder for granulating is sorted

into four different grades of fineness, by dashing it through sieves with 80, 100, 120, and 140 meshes upon the quadrate centimetre. The sorted and carefully dried powder should be kept in labelled bags, or, preferably, in air-tight glasses (in heated rooms in winter). Without regard to the nature of the drawing to be etched, the plates are granulated first with the 80, then with the 100, and, finally, with 120 powder. The 140 powder is, besides, used in heliographic half tones and plates to be deeply etched. The granulation or grinding with the moistened powder is done by circular movement and with most painstaking accuracy. The granulation is sufficient, when the plates present to the eye a distinct, uniform, half-lustre, not a real lifeless lustre, and yet not that gloss that highly polished plates have. After the grinding the plates are laid for some seconds in an acid bath of 100 grains of nitric acid to 5 litres of water, and in a preparation bath, consisting of 5 litres of water, 500 grains of nutgall decoction, 100 grains of strong gum solution, 100 grains of phosphoric acid, and 5 cc.m. of muriatic acid. As much importance is attached to passing the zinc plates through this last acid bath (in the Paris atelier) as in graining the plates. In the graining, the pores of the metal are opened by laying it in the acid bath, but the metal surfaces are made "active," *i. e.*, resisting grease but susceptible to resistance. Geymet, himself, declares that he is unable to give a plausible explanation of the changes in the zinc after the acid bath, and he merely denotes the circumstances, in an expressive manner, as "surface inerte"—lifeless surfaces—*before* the baths, and as "surface vive" or lively surfaces, after the bath, and he maintains the fact that even when the color is forcibly put on in strengthening the drawings, the tendency of the tone is to occur in bright metal spots; that in the most extreme case, however, the tone can be easily removed again. Geymet advances the hypothesis, that the alleged molecular change in the zinc takes place in this metal through the known decomposition of water, or that the hydrogen by prolonging the *moment of beginning* (?) hinders the adhesion of the fatty stuff to the zinc, just as the pustules of the

gas breaks the current in the electric column. These questions are interesting enough to merit further study, and as an empirical explanation of the events sketched, I might mention that the pores of the zinc opened in the graining and etching represent so many microscopic reservoirs, in which the moisture accumulates better, and in its totality appears better fitted to break up the fatty stuff.

However, let it be as closely investigated as it can be, the effectiveness of the graining and of preparing the zinc plates in the acid nutgall bath, is established in the Parisian chemigraphical atelier, and it has also been proved by us and in Germany; it is requisite for zincography and also for printing zinc plates, to go through a long course of particular preparations, which, however, when once introduced, lay a solid foundation for the further operations of strengthening and etching, so that the work after that can be completed just as quickly and thoroughly as with us in the simpler and shorter method. The advantage of graining and preparing the plates is most decidedly manifest in every fine line and crayon drawing, particularly in photo-chemigraphic half tone pictures, which can be disfigured, if not made entirely useless, by the smallest trace of tone. This process is not of less importance in the case of using zinc plates in the lithographic press for multiplying in larger editions which is opposed by lithographers of late years.

The strengthening of the drawings upon the metal plates is done most neatly and carefully with the roller, and this method of working in the Paris atelier agrees with the process recommended in my work (*Hand-book of Chemigraphy*). Only writing letter plates and rougher drawings, and rubbed on by hand where the reproduction of the same does not depend upon the faithfulness to the original, thickening and disfiguring the lines.

Crayon drawings, however, as well as finer line and half tone phototypes, which should be reflected cleanly and truthfully, should of course only be strengthened with the roller. It is inconceivable that the covering or reprint color, which in being rubbed on by hand, must be previously

softened with turpentine, should turn out even in most skilful works, otherwise than bruised and dirty upon the drawings. The finer parts are thickened, the drawing itself is dirty of appearance, its originality is destroyed, and the whole transaction only serves to bring discredit on chemigraphy. On the other hand, by first strengthening with the roller, where only firm yet finely divisible covering color is used, and which can be disposed uniformly upon the upper surface of the drawing, it will not be bruised by moving the hand round about the lines and points. The resin powder more lately sprinkled on is thus allowed to remain on the surface of the drawing, and the result of the whole is exact and quickly executed work.—*Photo. Correspondenz.*

### PERTAINING TO THE



### CHICAGO CONVENTION.

As the time approaches for the holding of the Eighth Annual Convention of the P. A. of A. the question naturally arises, "What are the prospects for success?" In answer, I desire to say that the outlook is most promising, and a *grand success* is assured.

Communications are received daily from all sections of the country, displaying a remarkable interest.

The arrangements of the Executive Committee have met with universal satisfaction, and the most excellent and liberal provisions made for the encouragement of exhibitors is stimulating photographers all over the country to the most active efforts in preparing specimens of their work for competition.

From observations which a recent extended trip has enabled me to make, and in conversation with photographers through-



out the West and South, the greatest satisfaction is manifested at the new arrangement of class competition, and from the extensive preparation of work for the Convention noticeable in a large proportion of the galleries visited, a most remarkable exhibition of photographic work may be expected.

I have received promises of exhibits from many photographers in Colorado, California, Texas, Louisiana, Georgia, and Tennessee, and the probability is, we shall be favored with some very beautiful studies from these localities. This, added to the usual magnificent displays from the Eastern and Middle States, cannot fail to make an exhibition surpassing all former conventions.

The two medals offered for foreign exhibits will doubtless induce many British and European photographers to make displays, which, judging from former foreign exhibits, will afford much profit and pleasure to our members.

The awards will consist of thirty-three medals in all, comprising one grand prize—diamond badge; eight gold, fourteen silver, and ten bronze medals.

The grand prize, diamond badge, with four gold and four silver medals of Class A, offered for the best exhibits in portrait photography, will give an unusual incentive to those ambitious to aim at the highest, to come to Chicago with fruits of their skill and labor, and the race for the diamond badge promises to be the most interesting of any competition in the history of our Association.

For those with facilities for making large contact work, two special medals are offered, which ought to induce many to enter for Class B.

At former conventions many complaints have been made that the photographer of moderate means, and living at a great distance, had not a fair chance in competing with those capable of making extensive exhibits, the general attractiveness of which was usually greatly augmented by expensive and elaborate display of frames. This objection is entirely obviated by the rule which requires all competing exhibits to be displayed without frames or glass.

Class C, which provides for ten bronze

medals, restricts the competitor to twenty-four cabinets, and as those competing in this are debarred from any other class, it will afford an opportunity for those who do not wish to make expensive exhibits to win recognition for the merit displayed in their work.

Intending competitors will be furnished with necessary blanks by applying to the Treasurer.

Mr. Gayton A. Douglass, Committee on Transportation, has secured exceedingly low rates. Where fifty or more can rendezvous at the same point and purchase their tickets at the same time, the rate will be one fare for the round trip.

It is hoped that the stockdealers in the large cities will interest themselves in getting the necessary number to meet at prominent points. If these places of meeting are made known to photographers in the vicinity, or even within a radius of a hundred or a hundred and fifty miles, accompanied with requests for replies from those intending to go to the Convention, the number can be ascertained beforehand, and save any trouble at the last moment.

In case the required fifty cannot be got together, a rate of fare and a third will be required, the person buying a first-class ticket to Chicago, and at the same time obtaining from the ticket agent a certificate showing that full fare has been paid; on presentation of this to the Secretary at Chicago it will be signed, with which a return ticket can be obtained for one-third fare.

In addition to the Association prizes, the following prizes will be offered for competition:

1. One Silver Cup, made by Tiffany, New York, value \$250.00, presented by Mr. T. H. Blair, of Boston.
2. \$650.00, offered by the Eastman Dry Plate and Film Co., Rochester, New York.
3. Two Air Brushes, offered by the Air Brush Manufacturing Co., Rockford, Ill.
4. \$100.00, offered by E. & H. T. Anthony & Co. New York.
5. Two Morrison Lenses, value \$250.00, offered by the Scovill Manufacturing Co., New York.
6. \$100.00, offered by the Stanley Dry Plate Co.

7. Two Beck Lenses, value \$160.00, offered by W. H. Walmsley & Co., Philadelphia.

And now, brother photographer, what are you going to do toward insuring the success of our Eighth Annual Convention? Have you decided in which class you intend to compete? and are you keeping this in view in your every-day work? If not, rest assured it will *pay* you to do so.

Aside from the pleasure and gratification of winning medals of merit, the improvement in one's work which invariably follows the extra effort put forth under Convention stimulus, will well repay in the increase in business occasioned by the higher standard of work, for all the extra labor it may have entailed.

It is not difficult to pick out the Convention photographer from among his non-convention neighbors, and the wonderful improvement in the work and business prosperity of hundreds of our members should lead others to emulate their example.

Let us have a grand rally at Chicago.

Fraternally,

H. S. BELLSMITH,  
Secretary of P. A. of A.

IMPORTANT NOTICE TO EXHIBITORS AT  
CHICAGO CONVENTION, AND TO PARTIES  
OFFERING PRIVATE  
PRIZES.

Your attention is called to the following extracts from the rules governing exhibits at the coming Convention.

"All competing exhibits must be without frames or glasses."

"*Resolved*, That no signs of any description shall be allowed to be placed in the halls devoted to the display of photographs, except one card to every exhibit, said card not to exceed 7 by 12 inches in size, and to contain only name and address of photographer whose work it represents."

"*Resolved*, That any picture may have its title or subject neatly inscribed thereon, but nothing of an advertising nature will be permitted."

"*Resolved*, That the Executive Committee shall be charged with the duty of removing all objectionable features."

These rules were adopted to lighten and simplify the labor of judges in making awards, and to prevent the art exhibition from becoming an advertising vehicle as heretofore, for makers of plates, paper, lenses, etc.

A number of private prizes being offered by different manufacturers for exhibits in which their wares are to be used, the Executive Committee deem it proper to call the attention of all parties concerned, to the above rules.

No pictures will be allowed in the Art Exhibition that have any marks indicating what plates, lenses, paper, etc., were used.

Pictures competing for private prizes must be displayed in the Stockdealers Department, to which above rules do not apply.

By order of the Executive Committee  
P. A. of A.,

H. S. BELLSMITH,  
Secretary.

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OUR PICTURE.

ONCE more we make an addition to our promised series of infantile pictures; this time from the studio of Mr. James Landy, of Cincinnati, Ohio. Mr. Landy has long been known as the chief baby-charmer of Cincinnati. He seems to possess some fascinating way, all his own, which cajoles the little people into their strangely sweet posturings, so easy and so graceful withal.

We understand that Mr. Landy is to make a very fine display at the Chicago Convention, so that what is before us is simply a foretaste of what is to come.

One never tires of such subjects — one always learns something from them. Mr. Landy writes us that his chief aim with them is to bring out their child-likeness without making the technique the first object.

Mr. Landy's negatives were made on the Cramer plates, which stand so high in our market. The prints were made by Messrs. Roberts & Fellows, on the N. P. A. paper imported for us by Messrs. E. & H. T. Anthony & Co., New York. Can anything be better?

## THE WORLD'S PHOTOGRAPHY FOCUSSED.

T. C. HEPPWORTH, Esq., author of the very acceptable "Notes from London" which appear in our pages and editor of the London *Camera*, writes the following concerning Wilson's *Photographics*:

A handsome book of nearly 400 pages, from the pen of one who is already known to the readers of the *CAMERA*. Dr. Edward L. Wilson, who tells us month by month what is going on among the photographers of America, has produced in this volume one of the best and most original works upon photographic art which we have ever seen. It is constructed upon a somewhat new plan. The body of the work is printed in large type, which the reader is recommended to master before attacking the copious notes in smaller type which are printed beneath. The large type words are Dr. Wilson's, and the notes are gathered from nearly two hundred authorities, with the names and initials appended to each. The plan is a good one, and will be appreciated by the practical worker. Dr. Wilson has the gift of writing what would be very dry matter in other hands in a fresh and interesting manner, adorned frequently with touches of humor which give his work much charm. His extended experience in all branches of photography cause him to represent a good authority upon the art, and the beginner, as well as the advanced student, cannot be in better hands as a guide. With regard to the notes, which, by the way, are illustrated—and well illustrated, like the rest of the book—they are evidently the outcome of most diligent research. One is often apt to regret that the little recipes, experiences, and dodges which form brief paragraphs in photographic literature should be too often forgotten in the limbo of back volumes. Dr. Wilson has preserved such items for us in the notes to his "Photographics," and for this reason alone the volume should find a place in every photographer's library.

THE Edinburgh Photographic Society is a live one, and its example of securing some useful paper for each meeting should be followed by other societies.

COLORS in natural photographs are now caught in orthochromatic style.

THE Photographic Convention of the United Kingdom was held June 4th, at Glasgow. Such a thing could hardly occur in this country. An exhibition will be held this time in connection with the meetings, and camera excursions.

THE King of Italy is with us and disports the tripod alternately with the sceptre.

READ Rev. Dr. Alston's timely remarks on "Slow Development"—and slowly digest and follow them.

GOOD sense crops out in several of the articles in our current issue.

THE Fleuss ice machine is going to unfurl our plates hereafter. Particulars soon. It is a wonderful invention.

THE lovely autoglyph of "The Gleaner," which appeared in our magazine has been published twice in the *Camera*, the first edition having been exhausted.

A LOT of Carbutt's "stripping" plates went to an Egyptian photographer recently.

Mr. Carbutt is also cultivating Spanish trade with satisfactory results.

SOME lovely landscapes will be presented as "Our Picture" shortly.

SUTER'S NEW RAPID APLANAT.—The focal distance of one of these objectives was found by different means to be 357 mm. in the middle. Since the opening amounts to 58 mm., thus  $\frac{d}{f} = \frac{1}{6:15}$  is the proportion, as in the Voigtländer Eurycope. The stops are 59.8, 47.7, 34, 24, 12, and 9 mm. in diameter, and are at last, as has been so long required, denoted with the value  $\frac{F^2}{d^2}$ , so that they produce without increasing the relative exposures. The light circle, at a distance of the sight disk from the blind slit of 348 m., has a diameter of 460 mm., the picture angle is 66'' 55'. Also, by practical proof the objective has proved itself equally good with the eurycope. With a screen 12 mm. I worked completely a plate of 18 x 24 mm.—*Archiv.*

ONE of the most important papers contributed in behalf of our art for a long time, is the one by our old correspondent Dr. M. Carey Lea on page 388. It is a volume by itself. In order that our readers may thus keep it for reference and study, we print it all in one number.

DR. LEA is a most enthusiastic and persistent experimentalist, and we regret that his ill health prevents him from contributing more of his knowledge to our literature.

THE "Photography in Natural Colors" excitement in England is about to creep behind the "convex glass process" so amateurishly fashionable here a dozen years ago—more or less.

M. NADAR made photographs of the ruins of the Opera Comique in Paris, on the Eastman Walker films, and sent us copies. They are fine.

MR. F. H. WILSON is trycycling in Southern England with his camera, collecting material for his future literary work. He rides tandem with his friend Mr. Porter.

THE editor of the *Amateur Photographer* prepared a "Royal Jubilee Album" which was sent to Queen Victoria on the occasion. It contained a history of photography written by a fifty year worker in our art science. There were about sixty contributors of pictures to the album.

NEW styles of cameras are produced so plentifully now that it takes a clear head on the part of a dealer to remember them and all their points.

THE article, "Finding Pharaoh," with which the *Century* magazine for May opens its columns, is from the pen of our esteemed contributor, Dr. Edward L. Wilson. Dr. Wilson happened to be at Cairo when the Royal mummies were brought to the Bûlâq Museum, and had every facility for photographing them. His photographs are published as illustrations to the weird, but fascinating, story which he tells so well. The thought of these mummies being posed before a camera, after their burial of 3000 years or so, is one which fills the mind with

curious reflections. Evidently was this the case with a child to whom we showed the pictures. "And was this shrivelled thing really the great Pharaoh who oppressed the Israelites?" he asked. "Yes," was the reply; "the writings on the mummy case leave no room for doubt on that point." "Then he wasn't drowned in the Red Sea after all," was the triumphant rejoinder. — *The Camera*.

"WILL it ever become possible to secure pictures in natural colors, instead of in black and white?" is a question that is so often addressed to expert photographers that they are quite sick of it. Most thoughtful people look upon the matter as a physical impossibility. But from time to time the color process has been announced as an accomplished fact, and, after a few persons have been gulled, it is heard of no more. It was recently announced that Mr. Mayall, of Bond street, had at least achieved the great discovery of photography in colors—an announcement which resulted in a visit to his studio to see what had been done. — *The Camera*.

MR. MAYALL exhibits a number of colored pictures; but he does not pretend for one moment that they are produced direct in the camera. His process is at present a secret one, but he will presently describe it before one of the learned societies, and until then we cannot give much information about it. We understand, however, that the coloring is done as a subsequent operation, by the action of light, and that it is absolutely independent of aid from the hand of an artist. The results are certainly very soft and beautiful, and we shall be glad when we are able to learn more about it.—*The Camera*.

### A MODEL ALBUM.

WE have received from Mr. A. R. Dresser, Secretary of the Camera Club, London, a dozen of his lovely rural pictures which come to us in the neatest, newest shape we have seen yet.

The prints on alpha paper are bound in a cover with blank leaves of writing paper between them. On these leaves the title

and particulars of the picture preceding are given. Thus, the album becomes an illustrated letter of experiences, beautiful and unique. Below we give the entire text. We wish it was in our power to give auto-lyths of the charming illustrations. The plan is similar to that adopted by our clubs for their scrap albums, and yet for sending from one friend to another what we fancy to call an illustrated letter, we think Mr. Dresser has made known to us the most delightful of all methods. His pictures are as lovely as his idea, and, as the titles prove, present a fine variety of subject. Nos. 2, 6, 8, and 11 are particularly fine. The alpha paper is soft and velvety in effect. Mr. Dresser writes thus:

"Alpha paper is, I fancy, a chloride or bromide paper; it is sold in the English market by the Ilford Company, is to be used the same as bromide paper, only toned.

"I do not use their formulæ but one of my own, as can be seen by my notes."

The pictures are as numbered:

1. Foots Gray Old Church, Kent.

Taken in May, 1886, on an Eastman film, using Dallmeyer's rapid rectilinear lens (whole plate size); stop F. 32; five seconds exposure; developed with Beach pyro potash developer. Negative a very good one; it was unoled.

Printed on Alpha paper, with exposure one minute, one foot from an ordinary gas-burner; developed with iron, viz., saturated solution of oxalate potash 3 ounces, saturated solution of iron 3 drachms, and 3 drops of 10 per cent. bromide; then washed with acetic acid and water (2 drachms of acid to 40 ounces of water), then in alum bath for five minutes, then well washed and put in saturated solution of hypo, to every 10 ounces of which are added  $1\frac{1}{2}$  grains of gold and 1 grain of platinum, and left in said hypo from five to fifteen minutes, according to tone required.

I enlarged this film up to 10 x 12 and got a very good enlargement without any sign of grain.

I bind all my pictures or rather prints, if on alpha or bromide, this way, for two reasons: one, it is cheap, as the book only costs 1s. 6d., or 40 cents, and it is much

better, as I fancy that the putting prints into a book with paste or starch is what causes them to fade so quick, as I find one I have done some years ago, on silver paper, are all perfect that have not been put in a book with starch, but all that have been pasted in a book are gone, more or less, and so I strongly advise this way even for silver prints.

P. S. This is one of the oldest churches in Kent.

2. An English Country House.

Taken on an Ilford plate (8 x 10), with a Ross wide-angle lens F. 32; three seconds exposure, in October, 1886. Developed with Beach pyro potash.

Printed the same as No. 1, but the sky is printed in, and no alum used. The exposure for printing from this negative was—sky, ten seconds, and subject, thirty seconds.

This is a good lens, as the bushes in the foreground were only about six feet from the lens; it is one of the old make by Ross, and is worth ten of the new.

3. A Rough Day at Bagnor in Sussex.

Taken in July, 1885, on a Cadett plate, with shutter at fiftieth of a second, with Dallmeyer's rapid rectilinear lens, on a half plate camera, stop F. 10. The day was dull and very cloudy, so had some trouble to get a good negative. I developed it with pyro and ammonia.

This print is rather overdeveloped in the iron. I used same formulæ as No. 1, but the gold was used up, as I had toned about thirty with the bath of thirty ounces of hypo and gold.

P. S. Bagnor is a sea-side town near to Chichester in Sussex, a great place for children to go for bathing, as the sands are so fine, extending over two miles at low water.

4. Sea Breaking Over Wall at Bagnor.

One of my first negatives; taken when on my first trip out with a camera, in July, 1883. Negative very much underexposed. Exposure for print twenty seconds; same developer, etc., as No. 1.

5. H. M. S. "Chichester," a Training Ship for Boys,

Taken in August, 1886, on a Cadett plate;

exposure, the twentieth of a second; Dallmeyer's rapid rectilinear lens, stop F. 10. Blowing a gale but fine. Developed with sulpho pyro, 4 grains to the ounce of water, and saturated solution of washing soda 60 grains to the ounce, at first, and 60 drops more added per ounce after.

Sky printed in from another negative. Gave sky twenty seconds and negative fifty seconds for printing from; toned, etc. same as No. 1.

The boys were manning the yards at the time.

#### 6. Arundel Windmill, Sussex.

Taken on an XL "Edwards" plate; exposure three seconds; stop F. 32. Day dull. Lens, Dallmeyer's rapid rectilinear.

Sky printed in from a sky negative of my own. Print developed and toned same as No. 1.

Negative taken while on a trip up the Arundel River, in July, 1886.

#### 7. Head of Arundel Lake.

Taken on a British plate with Lawley's half plate rapid rectilinear lens (cost 30s.); stop F. 32; exposure five seconds, and taken during a rain storm. Developed with pyro and ammonia. Printed and toned same as No. 1.

Arundel is the seat of the Duke of Norfolk, and is a very fine place, with beautiful park and lake; it is situated on the Arundel River. It is one of the show places of England. The castle is a very fine one, and part of it was standing when Alfred I. lived. It is a place worth going to; two or three days can be spent there with a camera. Leave can be had to photograph the castle.

#### 8. Picking Wild Flowers in Goodwood Park.

Taken in May, 1884, on a British plate; Dallmeyer's rapid rectilinear lens; stop F. 64; exposure fifteen seconds. Day fine. Printed and toned same as No. 1.

Goodwood Park is another show place of England, and is the country residence of the Duke of Richmond and Gordon, and was given to that family by Charles II. The Goodwood races are held here every year at the end of July. A place worth

going to for a few days with a camera; the house is not worth photographing.

#### 9. Lane in Goodwood Park.

Same lens, plate, etc., as No. 8.

#### 10. Caught Bird-Nesting at Old Ruins, Boxgrove, Goodwood.

Taken June, 1885, on a Cadett plate; Dallmeyer's rapid rectilinear lens, stop F. 16; exposure twentieth of a second. Developed with Beach pyro potash. Printed and toned same as No. 1.

#### 11. Deer in Arundel Park.

Taken in July, 1885, on a Cadett plate; Dallmeyer's rapid rectilinear lens, stop F. 10; exposure twentieth or thirtieth of a second.

I focussed and followed the flock up with the camera in my hand and let fly when they started.

Sky printed in from another negative. Printed and toned same as No. 1, only no alum was used.

#### 12. Dam on Cray River, Bexley, Kent.

With my Two Children.

Taken on an 8 x 10 plate and cut down, as the plate was marked. Ilford plate; a Ross 8 x 10 wide angle lens, stop F. 32; exposure thirty seconds. Negative underexposed and very hard. Printed and toned same as No. 1.

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## SOME PHOTOGRAPHIC HERESIES.\*

BY CHARLES TRUSCOTT.

ANY photographic theory or opinion opposed to the generally accepted one, may be called a kind of heresy, and the heresy of one year frequently becomes the orthodoxy of the next.

The average professional photographer is generally a very conservative individual, slow to accept anything new, or to adapt himself to a new order of things, and yet possessed of more than the average share of ingenuity. This conservatism may arise from the scarcity of writers on photography

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\* Read before the Photographic Society of Philadelphia.

who are good at making photographs, many of our best photographic writers being proverbially but indifferent photographers; the consequence of this is a large proportion of very fine writing, not without its value to the art science, perhaps, but which is either misleading or ridiculous to the practical worker. Correct theory is, of course, very useful to the intelligent workman; but a false theory is neither ornamental nor useful, and a theory founded on imagination or superficial experiment is very apt to be false.

Many of us can remember when a collodion-bromide and gelatino-bromide emulsion experimentalist was regarded as a kind of fanatical searcher for the photographic philosopher's stone; and the possibility of producing a dry plate to equal wet collodion in sensitiveness, was looked upon as on a par with photography in natural colors. The journals were half-full of the heresy of emulsion photography, but nobody but enthusiasts would read such rot, until Charles Bennett announced photographing an interior by gas-light, and, what was more, showed the results before one of the London photographic societies, when the photographic world began slowly to awake to the fact that it was on the eve of a great photographic revolution. Then, as there was no denying the rapidity of the new gelatine dry plates, those who had mastered the wet collodion process, but had not the energy or ability to acquire at once the skill to do as good work by the new process, naturally blamed the process, and denied the possibility of its producing such good results, and there are still plenty of photographers in this city to-day who profess to believe the same.

When steel pens were introduced, there were for years many who still clung to the old scratching quill pen, but it was buried with them.

I propose to let wet collodion, for negative-making, bury itself, having been among the first to dispense with it for that purpose.

Gelatine plates. Photographers generally are afraid of a very rapid plate for general work; they say that qualities, such as sparkle and latitude, have to be sacrificed to rapidity.

I do not believe a word of it. I hold that a good rapid plate is capable of doing all that a slow plate is, and much more beside. Then why ride a mule when you may have a good horse for the same money. It is like some beginners I know who were very anxious to possess a lens of great rapidity; they obtained one, but never, under any circumstances, think of using it with any but the smallest diaphragms. They have two good legs, but are afraid to walk, and so hop about on one; or they may be likened to a man who uses steam power—when his boiler has been tested to 400 pounds, running with safety at 100 pounds pressure, he is afraid to work at more than 25 pounds, and, as a consequence, is always short of steam to drive his engine and machinery efficiently. Gentlemen, how many photographers are there who take full advantage of the great rapidity of the modern dry plate of to-day? Very few. Indeed, I hold they cannot do so with the appliances which are on the market to-day.

Sometimes we are told that "gelatine has ruined the business." What! enlarging the scope and power of photography has ruined it! Did the collodion process ruin photography? It ruined the Daguerrotype process; but photography? Not much. Gelatine may, and will, supersede collodion for negative-making. It cannot ruin photography, but is a new power and blessing to the photographer and the world, and we do not yet know half its capabilities.

Development. Another heresy of mine is concerning development. Development is not the simple matter some people would have us believe. It is a little science in itself, and not to be learned in a year. Now it is generally understood that slow development is the best treatment for a minimum exposure. My practice is directly opposite to that, inasmuch as I invariably use the most energetic developer I can compound and the plate will stand for such a case. I have no faith in homeopathic development as a remedy for general debility in the latent image. Did we use a weak developer for underexposure on wet collodion plates? No; but both strong and hot, because it was right in theory and practice.

The amateur photographic epidemic is

regarded by many professional photographers with a great deal of misgiving. Some even going so far as to say, "Amateur-are ruining the business." Now, I have had considerable opportunity of forming a correct opinion on this point; and while I admit there is a certain class of mercenary plate spoilers, calling themselves amateurs, who expect their camera to earn its own fodder, or who go to Florida, or some other health resort, with the intention of making photography pay part of their expenses, yet I do not admit that calling themselves amateurs will make them such, in any sense of the word. They are professionals, to all intents and purposes, for the time being; professional quacks, sailing under false colors. I have no doubt that they do some little injury to the business by cultivating the popular idea that photographs do not cost much to make, and that if a man has good instruments and plenty of light, he has every requirement to make good photographs. This idea the genuine amateur is doing yeoman service to correct. See how he is educating the public taste to discriminate between good and bad photographs. Then look at the number of those who buy expensive instruments, and yet never, or only after much experience, produce good photographs. Is not that teaching the public (what they are slow to learn) that skill is an important factor in the productions of good photographs? And when the public are able to recognize the qualities of photographs, and appraise them at their intrinsic value, then the profession will be ruined to all incompetency, whether called amateur or professional, and the skilled workman will find his hands full, and prices good.

I was out with my camera a few days ago, and a gentleman came by and asked, pointing to the camera, "What sort of pictures does that make—clear?" I must confess he did not make himself clear to me, so I answered, "That is for making photographs." He said, "But does it make them clear?" I replied, "That depends on how it is used; it is a question of skill, not tools; one man will carve better with a penknife than another will with the finest set of carving tools."

While I possess the most complete outfit probably in this city, and set a high value on it, I should be foolish to expect my work to be good simply because I possess good tools."

Let us take a comprehensive view of this subject, and see how it looks from a distance in a good light. The universe, and all contained therein, visible and invisible, has to be photographed. Who is to do it? We professionals cannot begin to do it; it is much too large a contract. Then what are we to do? Are we to be like dogs in the manger, or cheerfully recognize the valuable service our amateur brethren are rendering in this work? How much, do you think, of the work done by amateurs would come to the profession? Less than one-tenth—that is to say, more than nine-tenths of the work done by amateurs would never be done if they did not do it. Then let us not forget the splendid services amateurs have rendered the art science in the past. Surely they have earned their diploma. Then away with petty jealousies and such old cries as "The craft is in danger!" If the craft is in danger, it is from within, and not from without; and it will generally be found that the most jealous are the incompetent—those who have no special skill to rely on.

There is a general superstition in the profession that a north light is a necessity for a portrait studio. In fact, I very much doubt if there is a south skylight in this city. See the trouble they have gone to all down Arch and Chestnut Streets to obtain a north light; they have had to either build over two houses, or spoil the length of the studio. Now I have worked under many skylights, and prefer a south light every time.

Speaking of portraiture, a portrait combination lens is supposed to give great roundness of image; of course, opticians favor this view, as well as many photographers. My opinion is, it is a question of lighting, and has little or nothing to do with the lens.

Mr. Burton has lately been finding fault with the term "depth of focus," but he does not suggest a better. He says it is impossible that more than one plane can be perfectly defined at once by any lens, no



matter how small the diaphragm used. Truly, we are getting things down very fine. Why did he not go further, and object to the term "flatness of field," because no lens has a perfectly flat field? Why did he use the term "perfect definition," when he knew that the correction of all photographic lenses is a compromise, and that the photographic lens has not yet been made perfectly free from astigmatism? Consequently, there is no such thing as perfect definition. I notice some writers on photographic optics have lately been using the term "penetration;" but is it any improvement on "depth of focus?" I think not; besides it is not nearly so expressive. The English language is a very good one, but, like many other things, is not quite perfect.

Another heresy of mine is that every live photographic society should have a standing committee, which may be called the "Research Committee," composed of three experts, who should, if possible, be either individually or collectively, skilled in photographic chemistry, photographic optics, and mechanics, with power to add to their number for special work. They should report at each monthly meeting on such matters as might have been referred to them, or in their judgment they may deem worthy of investigation. One part of the order of business should be "Report of Research Committee." A question may be asked which no one is able to answer, such as, "Is chloride of sodium a restrainer or an accelerator?"—referred to the Research Committee. An optician brings out a new lens or a new invention, or a plate-maker a new plate, for which they claim certain possible or impossible qualities. Knowing a society has a competent Research Committee, samples are forwarded for examination, and the reports of such Committee would be of great value to the members and the photographic world.

I have heard it stated, on good authority, that a diaphragm which expands and contracts during exposure would not give good definition with a single lens, but having tried it, I can say it is a mistake, for it does not injure the definition in the least, but improves it.

J. Traill Taylor, in a lecture on lenses recently, proposed as a corrector for single lenses a pair of common, cheap lenses, to be placed near the diaphragm; one a periscopic, of short focus, and the other a concave lens, of the same focus. I have tried it, and having no focus, it has no effect, as we might expect. This gentleman is usually so very accurate, especially in optical matters, that I am the more surprised he should make such a suggestion without having first tested it.

I was speaking of this to a gentleman whom you all know, and he said, "Have you seen my plan of doing that?" I answered, "No; what is it?" He said, "You are aware that a square diaphragm gives cushion-shaped distortion." I replied, "I did not; but I did know that placing the diaphragm behind the lens gave that form of distortion." Well," he said, "a square diaphragm gives it, too. Now, I make a round diaphragm, and outline a square outside of it, and in each corner of the square I cut out a triangular aperture, which will give a rectilinear picture." I tried the square diaphragm, and found it did not give the cushion distortion as stated, so did not think the other was worth trying, as the distortion is not influenced by the shape of the diaphragm, but by its position. I think the single lens has a great future before it, however some may despise it.

One article of my photographic creed is, I believe in the capabilities of a plate of the most exalted sensitiveness, the largest diaphragm, and the shortest exposure that will give the amount of detail and definition desired.

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### SOCIETY GOSSIP.

THE PHOTOGRAPHIC SOCIETY OF PHILADELPHIA.—A stated meeting of the Society was held Wednesday evening, June 1st, with the President, Mr. Frederick Graff in the Chair.

The Committee on Presentation Pictures for 1887, reported that they had selected "On a Virginia Turnpike," by Mr. John G. Bullock, and "The Elephanta, Caves, India," by Mr. Charles R. Pancoast.

The paper for the evening was read by

Mr. Charles Truscott, the subject being "Some Photographic Heresies." The reading of the paper was followed by an interesting discussion of various points touched on by the writer.

Mr. Coates preferred to use plates slow enough to give several seconds exposure, as with extremely rapid plates, cap exposures could not well be given for such times as 1,  $1\frac{1}{2}$ , or  $1\frac{3}{4}$  seconds.

Mr. Zeckwer suggested the plan of counting as rapidly as the numbers could be pronounced from 1 to 5, which would be found to take about 1 second. If then  $1\frac{3}{5}$  seconds are required for the exposure by counting thus rapidly 1 to 5, and then 1 to 3, the fraction of the second would be determined with sufficient accuracy for practical purposes.

If being suggested that the time could be prolonged by use of a small stop, Mr. Truscott made the objection that this was likely to cause diffraction of the rays of light, and consequent fogging of the plate. He stated that the shutter he used was accurately graded for short time work, from  $\frac{1}{250}$  to  $\frac{2}{3}$  of a second.

In reply to a question by Dr. Wallace, Mr. Truscott stated that in wet plate photography with short time exposures, such as portraits of babies, etc., he had frequently heated the developer to about 100° F. before applying to the plate.

For developing short exposures on gelatine plates, he used carbonate of soda, 1 part to 4 of water, varying the solution from a quarter to full strength. He found different brands of plates to vary greatly in the time necessary for development.

As to the most desirable position for a shutter, he considered back of the lens the best for avoiding fog, and in the middle of the lens the best for economizing space.

Mr. Fassitt called attention to an article on page 144 of the *British Journal Almanac* for 1887, on "A Cheap, Simple, and Effective Reducer for Gelatine Negatives." The directions called for diluting "ordinary chloride of lime with half its bulk of water," and then immersing the negative in the mixture about 20 seconds.

Mr. Fassitt found on trying the plan that the quantities specified produced merely a

thick paste, and not a solution in which the plate could be well "immersed." Its action was to quickly and entirely remove every vestige of the film from the plate.

As to its effectiveness, there could be no doubt, but its use for any other purpose than cleaning glass could hardly be advised. The publication of such impracticable recipes was calculated to do much harm, as they are frequently copied into one journal after another, without trial or investigation by the publishers, continuing their misleading career indefinitely.

Adjourned.

ROBERT S. REDFIELD,  
Secretary.

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## NOTES FROM LONDON.

BY T. C. HEPWORTH, F.S.C.

WE have waited long for the clouds to roll by—they have at length passed away, and brilliant summer weather reigns in their stead. Negatives which only a week ago took an entire day to give up their images, will now yield prints in the shade in twenty-five minutes or thereabouts, and photographers are happy.

But many of our best men have long ago given up dependence upon such a fickle thing as daylight for their portrait work. The electric arc-light is always at their beck and call, and on the most rushing day they use it in preference to any other form of illuminant. Only the other day I visited a studio where this course is followed. It was that of Mr. Mayall in Bond Street, and although the object of my visit was not to see the studio, I had an opportunity of doing so. The light is placed in a moveable umbrella-like dome, which can easily be shifted from side to side so as to light the sitter on either side. The lamp or regulator is of no complex kind, but consists of two carbons placed horizontally and capable of easy adjustment. The direct rays do not fall upon the sitter, but are reflected from the whitened surface of the dome. Other reflecting surfaces are brought into requisition below, so that the subject can be bathed in a soft light to the exclusion of hard shadows.

My object in visiting Mr. Mayall's *atelier*,

was to inquire about certain "photographs in natural colors" about which some marvellous paragraphs had appeared in the various non-technical journals. I saw various specimens of Mr. Mayall's new method of coloring, and very charming pictures they were. I was not surprised in the least to hear that he did not claim to produce photographs in natural colors. But he does claim to have invented a method of coloring prints which is entirely new. The colors are fixed by the action of light, and artistic skill is not called for in the application of the process. It is Mr. Mayall's intention to bring the subject before one of the learned societies, and I am quite sure that he would not make this intention known, unless he had something worth publication in that form.

Another firm in London is really advertising photography in natural colors, but as I have no personal knowledge of their method I do not care to say anything about it. Some years ago the same announcement was made, and I criticised the pictures which were shown to me as proofs, rather severely. Too severely, at least, for the editor of the paper in which my article appeared. Said he, "I was obliged to cut out one or two of your paragraphs, or we should have been in for a libel case, at the same time I know that you are right in your remarks." The pictures referred to were simply carbon transfers upon a colored surface, and could only deceive those who were quite ignorant of what can be done by judicious employment of processes open to everybody. "Photography in natural colors" is an epidemic which breaks out regularly about every ten years, and in that respect it is like the sea serpent. But, whereas there is very good evidence respecting the existence of the latter marvel, there is none at all as yet in favor of the former.

Preparations for the coming celebration of the jubilee of Queen Victoria's reign are now to be seen in every London thoroughfare, and if Her Majesty is favored with her proverbial "Queen's weather," photographers would have many opportunities for employing their cameras on the important day. The streets through which the procession is

to pass on its way to the thanksgiving service in Westminster Abbey, are being already fitted with tiers of seats wherever space for such erections can be found. The average price for such seats is two guineas, and even if the bearer of a camera was content to pay that amount, he would not find much room for necessary operations. A detective camera is about the only thing which would be of any use to him.

The Secretary of the Royal Meteorological Society has addressed a circular to all the Photographic Societies in Great Britain, asking them for assistance in obtaining photographs of lightning. The council of the Society believe that photography may settle several points connected with the discharge of lightning, about which much difference of opinion exists among physicists.

The best lightning photograph which I have seen was exhibited in London about two years back. It was taken on board his ship by an officer in the Royal Navy, while cruising in the Mediterranean. It appeared from all other photographs of the kind which I have examined, in comprising other objects besides the lightning itself. The rigging of the ship stood out in great contrast against the illuminated sky, in the centre of which appeared a many branched streak of brilliant lightning. The gentleman who took this picture, in a letter which he wrote to me about it, told me that few people would believe how many dozens of plates he had spoilt before he was rewarded by success.

Reproductions of photographs by the colotype process, many of them under fanciful names are now becoming more common for advertising purposes. I suppose that they will in great measure displace the Woodburytypes, which have hitherto done good service in the same field. Certainly some of these collotypes leave nothing to be desired, and afford evidence that the details of working by that process are much better understood than they were only a short time ago. Even a parliamentary paper has lately appeared adorned by one of these pictures, and a very good one too. It illustrated a report by the Master of the Mint, concerning the new coinage, and the jubilee medal, upon which the head of the Queen

appears, not as that of a young girl, as she is depicted upon our present coins, but as that of a lady of mature age. Considering that our honored Queen has for some time been a great-grandmother the change cannot be said to have come too soon.

## PRINTING PERPLEXITIES.

THINGS WELL-KNOWN BUT BADLY  
NEGLECTED.

(Continued from page 383.)

A VERY effective and agreeable polish on glass is communicated to card or cabinet prints, etc., simply by coating them with a glutinous plain collodion. This polish is not so flagrant on the one hand as the so-called enamel surface, nor so dead as an ordinary albumen print that has undergone all the operations up to the mounting. I think I am justified in recommending the operation. Prepare the collodion as follows:

### PLAIN COLLODION.

Alcohol, . . . .	3 ounces.
Ether, . . . .	4 "
Pyroxyline . . . .	42 grains.

Dissolve and filter in the usual manner.

The prints are first cut out to the proper size and floated on the reverse side upon clean water until they lie perfectly flat; then take one print at a time and place it on a piece of glass of the same size as itself, moist side downwards; it easily adheres to the glass. Let the excess of water drain off and remove all moisture from the picture surface; now coat it with the collodion and let it drain in the usual way, then dry it before the fire, or in any manner which is most convenient. The operation is quick; and, it seems to me, the glass is just about right.—**PROF. JOHN TOWLER, M.D.**

DURING the past year I have employed in the mounting of photographs an adhesive material of peculiar merit, which, so far as I am aware, has not hitherto been applied to such purposes. The use of thin glue is common enough, and so also is that of gum-water; each has its special advantages, but a mixture of the two proves to be better than either. Equal weights of "imperial

glue" and gum arabic are separately immersed in cold water. The first swells up by absorbing its own bulk or more of water, the latter dissolves altogether; the soddened glue is then transferred to a glue-pot, melted by the application of heat, and, when perfectly liquefied, the gum-water is added; the whole is well mixed by stirring, and then strained through fine muslin, to separate the woody particles and other impurities.

In the operation of mounting, this material or compound is warmed in a glue-pot, and applied with a brush to the back of the photograph. A thin, even coating is sufficient, and the print need not be hurried through the rolling-press, since the interval which may elapse before the setting is much longer than with plain glue. Other important advantages are the paler color and greater solubility of the mixture, so that if, by chance, an excess of the material is applied, that portion which makes its escape around the edges of the print can be instantly removed, by cotton-wool slightly moistened, without staining the card margin.

I have had great experience, both in the use of gum and glue separately, but their employment in admixture—due to the suggestion of our mounting assistant—is, I venture to think, a decided improvement. The consistence may be modified within somewhat wide limits, and, by altering the relative proportions of the ingredients, almost any desired quality may be secured.—**JOHN SPILLER.**

THEN comes the affair of wetting of the prints. At first, bunches of them were clasped by clothes-clips, and literally soaked in clean water until they became absolutely soggy. This method not proving satisfactory, the more sensible plan was adopted of placing them between damp cloths, and allowing them to remain there only long enough to remove their tendency to curl up. The application of the paste, the placing upon the mounts, and the rubbing down of the prints (protected by clean sheets of printers' ordinary white paper) with smooth blocks of wood, are all operations of so simple a character as to need no description.

The drying of the picture is a matter of no small concern. Slow drying, engendered

by piling together numbers of prints, begets mildew, and that in its turn brings ruin to the work. Mr. Edward L. Wilson came to the rescue with a happy thought, which was taken advantage of, namely, the suspension from the ceilings of veritable fishing nets. As soon as mounted the photographs were cast into these, and doors and windows generally being open, currents of air passed both above and below the cards, thus speedily rendering them fit for further manipulation.

Notwithstanding we have discussed all of this multiplicity of operations, our pictures are not yet ready for the market. There is the dreaded retouching of the print to be undertaken. It is work that has to be done by a skilful hand, and work withal that a skilful hand dislikes beyond any other task.

No matter how much care is used, it frequently happens in the printing of a large number of copies from single negatives, that specks of dust or dirt will inadvertently settle between the sensitive paper and the plate. They leave white marks, which do not sufficiently mar the print as to make it worthless, but which become in a measure eyesores to the critical purchaser. They have to be made of the same color, or rather tint, of the surrounding parts. A dab of India-ink, jabbed upon the offending spot, does not answer the purpose at all. As much judgment has to be used as is exercised by the lady who trots from store to store upon a shopping excursion, and expends hours in the matching of the hue of a dress pattern or a set of ribbons. In fact, judgment or "head" is *always* useful.—JOHN L. GIBON.

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## Editor's Table.

CERTAINLY the *handsomest* catalogue of all comes to us from the enterprising young firm of Messrs. LOEBER Bro.'s, 119 and 121 Nassau St. Its cover is prettier than that of any of our magazines—black and gold on a leather colored ground: and its carefully prepared contents reflects great credit on compiler, engraver, and printer alike. It contains over 100 pages, besides a very useful index. Be sure to get it.

MR. A. J. RIDDLE, Columbus, Ga., favors us with some examples of his cabinet and boudoir work. Mr. RIDDLE is a veteran in our art, but he is as progressive and ambitious as one of the "second generation." He maintains both quality and price.

MESSRS. CHARLES COOPER & Co., 194 Worth St., N. Y., send us their four-page price list of chemicals for June. We print a message from this well known house. Their policy has always been to "let live" and live.

MR. C. W. MOTES, Atlanta, Ga., with whose lovely work our readers have been made fa-

miliar, has some very nice things said for him by the *Constitution*; among other things, this:

"Mr. Motes is a self-made man, and all that he has become in the world as a business man, all the reputation he has won in his profession, has been achieved by his own exertions, backed with pluck and enterprise. He worked hard, and his struggles gained for him a name at the head of his profession and an enviable place in business circles.

"In Atlanta his name is as familiar as is photography itself. He has won a reputation in the capital of the Empire State of the South that has never been excelled by other photographers."

Mr. Motes has had fifteen medals awarded him for his work.

THE illustrations in Professor D. A. SARGENT'S article on "The Physical Proportions of the Typical Man," which will appear in *Scribner's Magazine* for July are from photographs of athletes, and diagrams furnished by the author. This article will be of special interest to young men engaged in outdoor sports and general athletes, and will also be of unusual value to teachers and parents as a guide to them

in the physical development of their pupils and children. Fine photographic studies also.

OUR old friend D. K. CADY, of Cincinnati, of the firm of P. SMITH & Co., writes us that they have just moved to Nos. 156 and 158 N. Fifth St., nearly opposite their old location, and now have a store-room which will compare favorably in size and conveniences with any in the trade. Glad to know it, and so will be their many friends.

*A Complete Treatise on Solar Crayon Portraits and Transparent Liquid Water Colors.*—The above is the title of a book written by Prof. J. A. BARRYDT, from his experience as an artist and teacher. These subjects are treated in a plain and practical manner, all superfluities being rejected, and nothing but practical ideas and directions given. Amateurs will learn ideas of color from this book that will be of value to them. And any one, by carefully following the directions on Crayon, will be able to make a good Crayon Portrait. We have before commended this capital work, and are glad to see it advertised afresh. It is mailed, post-paid, for 50 cents.

A RECENT visit to Messrs. W. H. WALMSLEY & Co., 1016 Chestnut Street, Philadelphia, opened our eyes to several interesting things. Among them was the new BECK lens with the "Iris" diaphragm, which we shall describe presently, and WALMSLEY'S micro-photo camera, which is a marvel of excellence and compactness. Mr. WALMSLEY says over one hundred of these have been sold. He is a great enthusiast, and no one can come in contact with him without learning something. He assured us that there will be some grand pictures at Chicago, in competition for the "Beck lens prize offer."

*Practical Directions for Photographing with Magnesium Light.*—This is the title of a new work by J. GADICKE and A. MIETHE, alluded to on another page by Dr. VOGEL. It is divided into two parts. The first contains a chapter on the history of the process; the second, or practical part, is subdivided into ten sections, treating, 1, of the magnesium mixture; 2, the lighting of this mixture; 3, the lamp; 4, the burning plate; 5, the reflector; 6, the extinguisher; 7, arrangement of the lights; 8, example of a portrait; 9, developing the negative; 10, concluding remarks. An appendix gives references and prices.

Two pictures taken by this process are given—one a head study, and the other an instantaneous picture, "By the Fireside." The magnesium mixture is protected by patent. A cut illustrates the construction of the lamp. Figure 2 represents the arrangement of the primitive contrivances which served for establishing the proper proportions of light.

The picture "By the Fireside" represents an old lady of seventy-nine years of age, who cannot go out any more: being afflicted with palsy. The picture, therefore, had to be taken in the house. The poor light of the room, and the longer exposition necessary there, made it impossible for ordinary taking; but three grains of magnesium mixture rendered it possible.

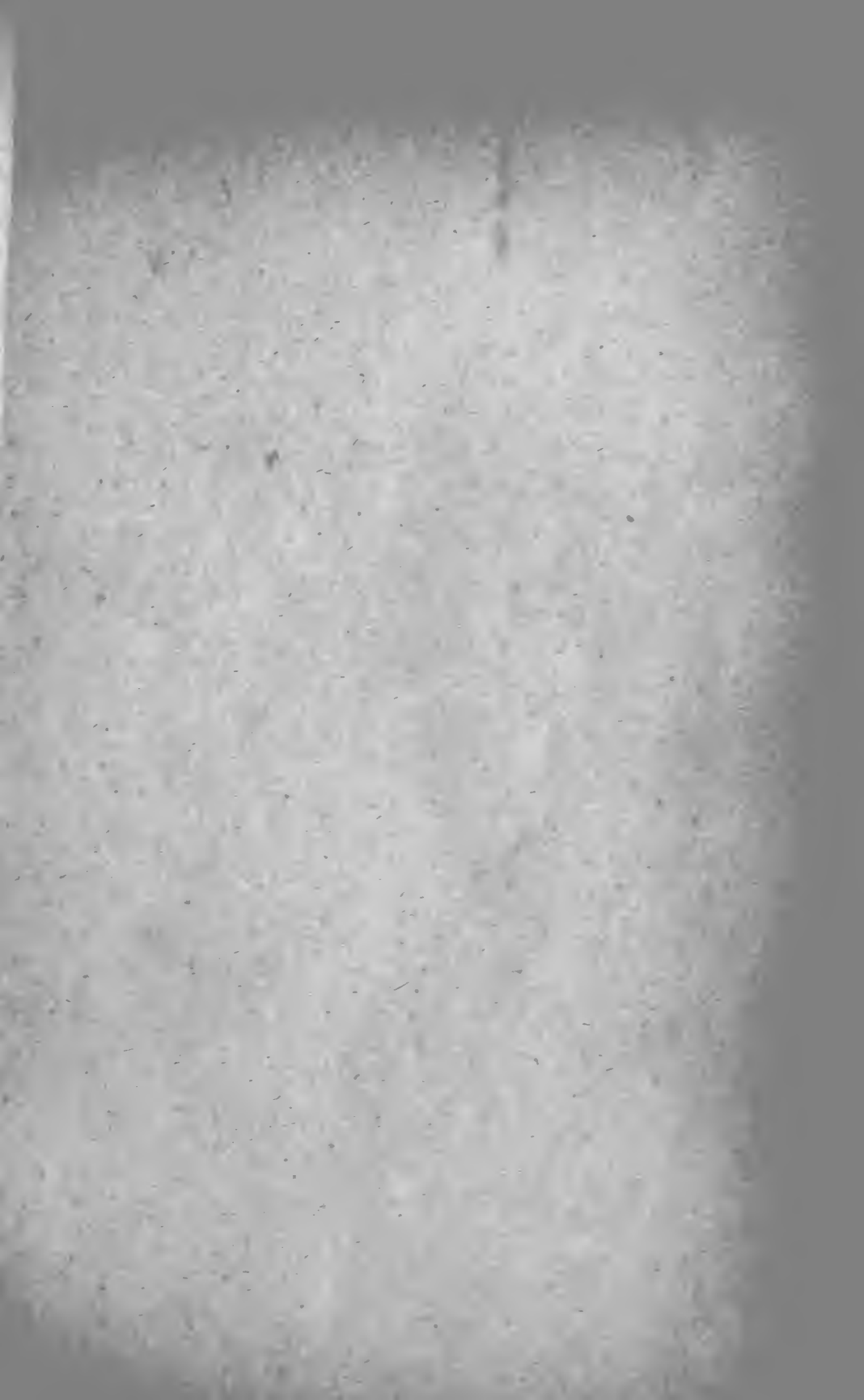
The utensils and materials for magnesium lighting, as well as for very sensitive dry plates, can be bought of J. GADICKE, 74 Ritterstr., Berlin.

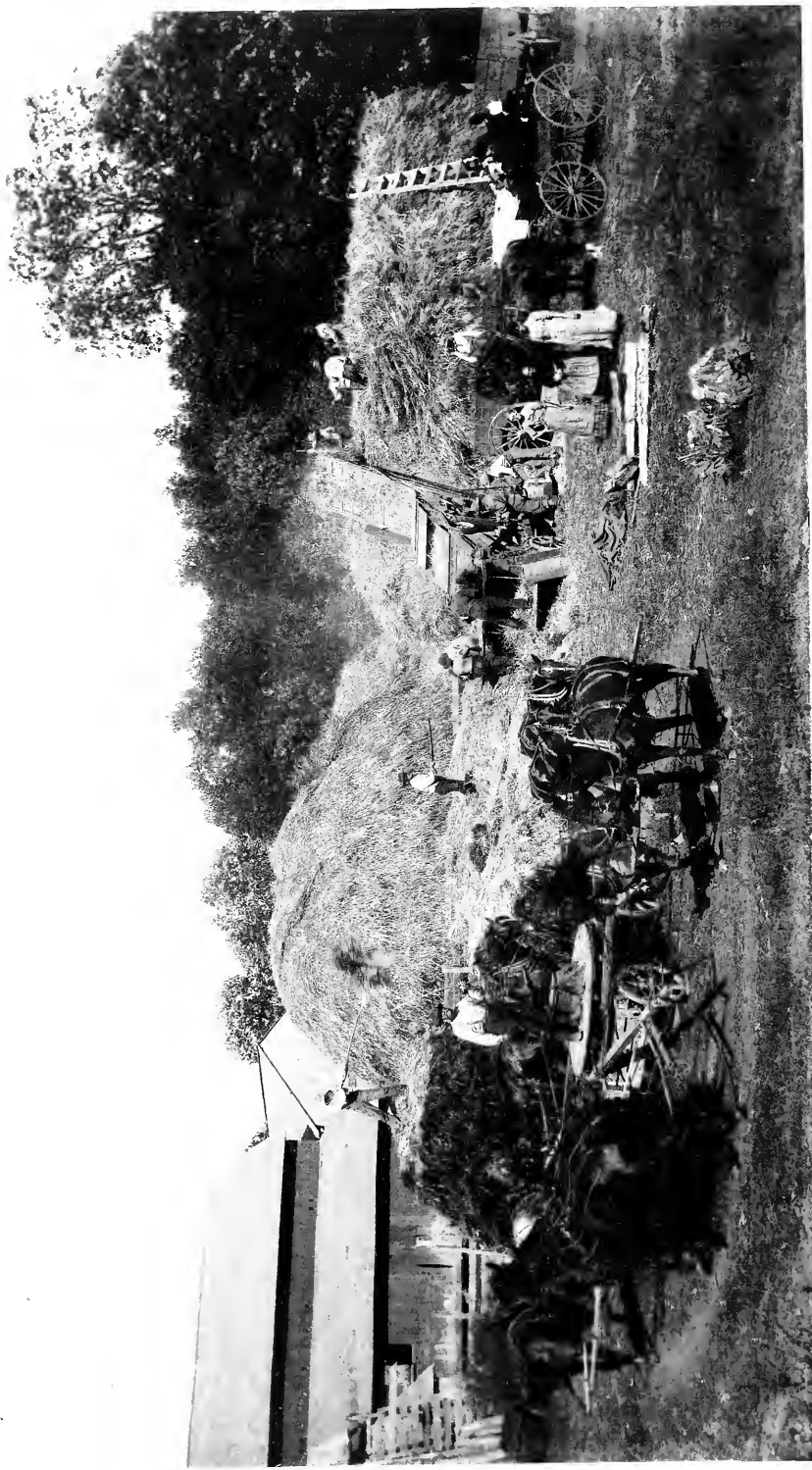
A NEW WORK ON PRINTING.—Since Mr. CHAS. W. HEARS'S *Practical Printer* went out of print, the market has been without any thorough work on this very important branch alone. The want is now splendidly supplied, however, by the Rev. W. H. BURBANK, whose new work entitled *Photographic Printing Methods* is now ready. Certainly it will fill completely the field so long neglected in photographic literature, and it will undoubtedly have a wide circulation among photographers and all photographic workers.

It contains exhaustive chapters on silver printing, bromide printing, platinum printing, printing with the salts of iron, printing with the salts of uranium, printing with emulsion, printing on glass, printing on wood, printing on fabrics, porcelain printing, photo-mechanical printing; beside, practical directions how to make silver nitrate, how to make gold chloride, how to make ferrous oxalate, and on the recovery of wastes, how to color lantern slides, finishing on bromide paper, enlarging, etc.

It is gotten up in excellent taste, and is beautified by two fine illustrations—a photograph print and a print on Eastman Bromide Paper. We predict a large sale for it, and congratulate author and publishers on its real practical usefulness throughout.

It is issued as No. 22 of SCOVILL'S photographic series, is substantially bound in cloth, and in all other respects is up to the standard of excellence maintained by this series. The price is \$1.00, post-paid.





CHAS. E. ORR, SANDWICH, ILL.

THRESHING TIME.

PHOTO-GRAVURE CO.



THE

# Philadelphia Photographer.

EDITED BY EDWARD L. WILSON.

Vol. XXIV.

JULY 16, 1887.

No. 302.

## PLEASE READ THIS CAREFULLY, AND AVOID DELAY AND MIS- UNDERSTANDING.

A PROOF shows every line, mark, pimple, defect, etc., in many cases stronger than in nature, and we soften or entirely obliterate what is undesirable, in retouching the negative, *after you have ordered the work to be finished.* We never retouch a negative before the proof is approved of and ordered.

If the *pose, lighting and expression* suit, you can safely order the picture, as all other defects are sure to be corrected, and even a too severe expression of the mouth can be softened.

The hair can also be darkened if desired, and any stray locks out of place can be obliterated, *if our attention is called to them.* We can also clear up the eyes and obliterate a cast in them.

If the position and expression and general character of the picture does not suit the *first* time, it is best to sit again, for which no charge will be made, but we will not make experiments on account of dress or style of hair, or other whims of sitters, without remuneration.

Our prices are scaled now to the lowest point at which good work can be delivered, and we cannot afford to make experiments for nothing, nor will we, on the other hand, raise our prices to such a point that those who are easy to please pay for those who are not. *We intend that our patrons shall only pay for what they receive, no more.*

It must be understood that no one can

put us to the expense and trouble of making sittings, without either ordering pictures or paying for services rendered. We are always willing to use every effort to please our patrons, *but we cannot give our time, skill, and material for nothing.*

Please do not wait, if you wish to sit again, for clear weather, as a cloudy day is just as good in our light, and, for persons with weak or light eyes, is better than a clear day. Some of our best effects are produced in cloudy weather,

*It will be useless to come for resittings after two o'clock in the day, as we must positively decline to make them,* the time after that hour being always engaged for new sittings.

[The above is sent us by Messrs. Bachrach & Bro., Baltimore, and we republish it with the hope that it may help some of our readers to pluck up courage and follow suit. —ED. P. P.]

## THE VETERAN PHOTOGRAPHER, JAMES LANDY, INTERVIEWED.

WHAT wonderful things can be accomplished nowadays by means of science and its ally, art! A *Times-Star* reporter to-day, shut up in a little unfurnished room with bare walls and carpetless floor, had the image of a glorious past revealed to him. Faces and forms that have long since returned to the peaceful arms of dear old mother earth, were recalled. Science spoke the word and they came back from the dark

oblivion of death to once more don their brilliant garb and charm the beholder with a smile. Winsome women and handsome men stood before the wondering eye revealed in all the health and spirit of life, hope shining in their eyes or contentment pictured on their features, glowing in triumph or laughing with joy. But they were a silent multitude. The curving lips were voiceless and the rounded form was still. It was the counterfeit presentment, the filmy, shadowy representation that filled the eye and sent a thrill of awe through the mind. Silent figures of an eventful period passed into eternity whose mysteries they have discovered, the little room seemed like a cube cut from another age and peopled with those who had given it fame.

It was a corner room in the building occupied by Landy, the photographer, that contained these treasures which were the personal property of that eminent gentleman. The pictures were those of the great men and women of the stage, the drama's king's and queen's. Charlotte Cushman, Edwin Forrest and his wife Catherine Sinclair, the elder Booth, Rachel, McCullough, Jeane Davenport, Gustavus Brooke and many, many others whose names will be handed down for future generations to reverence, all had a place in the collection possessed by Mr. Landy, which is one of the most complete in existence.

"I have been in this business of mine for thirty-seven years," said he, "and as I have always been particular to save the pictures of theatrical people, I have had unusual opportunities for making a collection."

There was not an important person of the last dramatic era who was not perpetuated in this collection, unless Matilda Heron, the great "Camille," is excepted, and as the artist unlocked the boxes of carefully guarded plates or finished photographs, and made comments that served at once as introductions and characterizations, the mind drifted away from the noise and bustle of present to the dim-growing memories of other days.

Before repeating the interesting observations of Mr. Landy, as he turned over picture after picture, it would be well to give,

as a preface, the remarks that apply to the members of the histrionic profession generally. He was asked if actors and actresses liked to have their pictures taken, and if the latter seemed to take pleasure in displaying thereby whatever loveliness of form they possessed. His reply:

"I find that theatrical people do like to have their pictures taken—not always from a sense of vanity, but often as a matter of business. The fame and popularity of an actor is his capital, therefore, it is to his interest to cultivate them. Photos distributed with discrimination serve to express a regard for the recipients of them and to refresh the memory from time to time, as they are seen. Actresses do not care to be photographed in costumes showing their form—that is, actresses of any note. Even Alice Oates, in her prime, disliked to be photographed thus, while Davenport, Anderson, Modjeska, Rhea, all of whom have appeared in tights on the stage, do not care to appear in them before the camera. As a rule, theatrical people are splendid sitters. They understand what is needed to obtain the best effects, and assume postures and facial expression that are necessary to obtain them. Joe Jefferson is a notable exception. There is a plate that I had hard work to get. Mr. Jefferson insisted that expression could only be given by motion, and I had an awful time getting him to hold still long enough to answer the requirements of photography. I had to be quite positive with him at last and assure him that while he could act "Rip Van Winkle" better than I could, I could take better pictures than he could, and if he wanted me to do my work well he must obey my directions. He became tractable after that, and, as you see, I succeeded in getting a good likeness."

It was a profile of the great comedian taken in street dress, and was a most admirable reproduction.

The next plate to come to hand was one of McCullough. Mr. Landy's face softened into tenderness as he fondled the faintly outlined form, and in an enthusiasm of admiration he exclaimed:

"Ah! there was a grand man and a grand actor. Kind hearted and generous

to a fault, he was a faithful friend and a lovable companion. He liked to have his picture taken in costume. This one you see shows him as he used to appear in "Virginus." One day, while he was filling an engagement at the Grand Opera House, he came to me and said he wanted to have some pictures taken of his "Virginus." 'Come up to the theatre to-night and judge for yourself which poses would appear the best,' he said. I went and took notes of the most striking attitudes, and the next day McCullough came with his wardrobe. I took fifty different pictures, then asked how many copies he wanted made. 'Oh, \$500 or \$600 worth,' he answered. I made them and sent them to him and he telegraphed me the money. That's the kind of a man McCullough was."

Turning over more plates, one representing Gustavus Brooke caught Mr. Landy's eye.

"Just see what a fine looking man he was," said he. "A good many years ago he was a popular actor, playing heroic parts, and after seeing his picture you will not be surprised when I tell you that he was a great favorite with the ladies. Poor fellow, he was lost at sea while en route to Australia."

The picture was that of a singularly handsome man with large, expressive features that bore the impress of refinement and intellectuality. A genial light shone from his large and brilliant eyes, the evidence of a kindly nature that must have won for him a large following of friends. There was something striking in the man's appearance. His face once seen will never be forgotten.

Here is a daguerrotype of that masculine woman, Charlotte Cushman. She was between thirty-five and forty years of age when it was taken, and one can readily understand from it, if he did not see the great actress in life, why she was characterized as masculine. The protruding chin, the square jaws, deeply set eyes, and thin, firm lips were little like a woman's, and the unwomanly appearance was sensibly heightened by the masculine shirt bosom, standing collar and tie, and the waist turned back in counterfeit of a vest collar. Miss Cushman evidently studied herself.

But there were dozens of these pictures of stars long dead, some taken in street attire, many in some favorite costume and to enumerate them all would be a serious undertaking and a thankless one.

Mr. Landy was asked why he did not reproduce them so that others might share the pleasures of such a collection. With an assumption of weariness he replied:

"I haven't time."

There was Booth, the elder, of picturesque and terrible aspect, seeming more like a mollified fury than a man, with long dishevelled hair and ferocious eyes; George Frederick Cooke, once a noted English actor, who spent several years in this country and who was a famous "Richard;" Jeane Davenport, later Mrs. Gen. Lander, a beautiful woman of queenly presence, who was the first to play "Camille" in America: Mrs. Coleman Pope, who was taken in the costume of "Ion." By the way, Mrs. Pope, although a capable and favorite actress, looked absolutely ridiculous in this costume. Her hair was all plastered down, excepting a bunch of curls over each temple. A tunic came down to her knees, her legs and arms being bare. The tunic hung in most ungraceful folds on what was an irregular, rather scrawny form.

"But she made a great hit in the part," observed Mr. Landy, whose memory reaches back to such remote periods that the suspicion arises that he is not the middle-aged man that he seems.

It was not alone the pictures of the dead, however, that comprised this remarkable collection, for there were also those of the living great ones of the stage. There was a picture of Adelina Patti taken when eight years old. The features were but little different from those of the diva as now, for she has changed but little. The dress she wore was an uncouth affair which terminated at the knees, and below was a liberal display of ornate pantalettes. Mr. Landy, who is modest if nothing else, left off the pantalettes in making copies of the original, a daguerrotype, and pointed out the fact with some embarrassment of manner. Then he narrated an anecdote which has never been published. Years ago, when Patti was not so famous as she is to-day, she was

travelling to Chicago on Lake Michigan. A lapdog, which she loved dearly, was dropped overboard. Mr. S. S. Smith, taking pity on Patti in her great grief, induced the captain to stop the vessel long enough for him to go in a yawl and rescue doggy. When he placed the dripping animal in its fair owner's arms she became profuse in thanks, and discovering that she could not reward Mr. Smith with money, she pressed upon him a pass to the performance she was to give that night. Business matters prevented him from attending, but he preserved the pass, which bore Patti's signature, as a memento.

As the years rolled on Mr. Smith prospered, and finally attained the office of President of the Equitable Life Insurance Company, while Patti became the greatest songstress of the world. Mr. Smith never heard her sing until she filled an engagement at the Opera Festival in this city. Then he determined to hear her, and bethinking himself of the unused pass, he inclosed it in a note to her, asking whether it would be honored. Patti was overjoyed to again hear of her pet's rescuer, and insisted that he should call on her. He did so, a long and pleasant chat was had, and for the time, that evening, was Mr. Smith enraptured by the heavenly voice that has been heard around the world.

A picture of Jenny Lind taken shortly after her arrival in America, showed her to be a rather homely young woman and her dress which was then *a la mode*, was very ugly and exaggerated her plainness of feature. Mr. Landy is going to take a copy of this picture and send it to the lady, now an old and feeble woman.

"Do you know who that is?"

The reporter replied negatively.

"Well, that is a picture of Oliver Doud Byron, taken in the costume of an Indian, and with a moustache. Actors in former days would not shave off their moustaches or beards, and some odd looking people were, as a consequence, seen. Lawrence Barrett was the first star to insist that the members of his company should be smooth shaven. He was never able to induce Louis James, his leading man, to do so, though. This picture of Frank Mayo recalls a story

that the great 'Davy Crockett' told me when he sat for it. He had come direct from New York, and on the train was a celebrated card sharp known as 'Canada Bill.' Mr. Mayo was a very much interested spectator of one of 'Bill's' swindling operations, and he told me that he never saw anywhere such magnificent acting as that rascal did when leading on his victim by degrees, and at last robbing him when he had been sufficiently interested."

Mary Anderson, Mlle. Rhea, Salvini, Murdoch, Barney MacAnley, and every other notable of the stage has a place in this splendid collection, and of each likeness, as it is taken from its place, is a story told that makes it doubly attractive as animating it with the spirit and motive of the prototype.—*Cincinnati Times-Star*.

### PORTRAIT LIGHTING.

A GENERAL suggestion in these columns some time since, to the effect that a sitter should be placed in about the same light as a piece of sculpture, and illuminated in about the same manner, has brought me inquiries for "further particulars," and some portraits taken in the manner suggested. These latter have excellent qualities, but show a lack of consideration, in most instances, of the circumstances which have been, so to speak, created and yet ignored! As a matter of course, if there are no reflectors, and the shadows are absolutely black, good results must be made at the expense of time. While I maintain the correctness of the general theory, I have in many instances found it necessary to modify the methods employed. For the last few months I have pursued a series of experiments directly in this line. Acting on the theory stated, that a sculpturesque light was to be desired, I removed all side reflectors and concentrated the lights to a greater degree than ever before. Some of my results were very satisfactory, but in many instances they involved long exposures. I also found that photographic portraiture under such circumstances was justice without mercy! With the middle-aged and old the effect was strongly to exaggerate the lines and shadows, and never to favor the sitter. Artistically,

the effects were superb; as portraits, the results were not such as would please the average sitter. I soon satisfied myself of this by making two negatives of each sitter, one as above described, and one in more diffused light and the shadows softened by a side-screen. The result was almost always the same—the sitter chose the latter. I therefore work now to get all the effect possible by direct light modified by means of a head-screen, with the shadows rendered transparent by a reflector. I produce the strongest effect first; then modify as already explained. I have said nothing of backgrounds, having discussed them in previous numbers of the magazine. Of course, the contrasts and general effects can only be secured by a careful consideration both of the distance and the tone of the background. It is almost needless to say that the latter should always be in contrast with the lights and shadows of the image—in a word, darker than the highest light, and lighter than the deepest shadow of the head. With the background screen already described, hung in the centre and capable of tipping forward or backward, almost any tone can be obtained.—G. G. ROCKWOOD, in the *Art Amateur*.

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### SLOW DEVELOPMENT.

BY REV. WM. ASTON, LL.D.

PERHAPS the following experience may be of use to some of my brother amateurs. For more than a year I have used nothing but the ordinary Ilford plates, and to my chagrin it has sometimes happened that, although I have used the formula for development supplied with the plates, and most carefully prepared, according to instruction, an appreciable percentage of failures has fallen to my lot. Of course, these failures have been generally those I wanted most to turn out successes, in accordance with the perverse and hidden mysteries of the black art in such cases. What were the causes of failure? Were the plates at fault, or was the developer the sinner? Was the lens suitable, and the camera all right? Of course, the workman could not be wrong; that goes without saying. Well, in thinking over the matter, I hit upon a remedy;

and as I have now developed four dozen plates without making a single failure in development, I naturally want to tell my brethren how it has all come about, though perhaps, by some cynical and knowing amateur, I may be charged with attempting "to teach my grandmother how to suck eggs." As he "knew all about it long ago," I beg of him to stop reading this at once. I write simply for those who are not quite perfect, and who want to learn.

My plates have had all lengths of exposure within reason, some four times that of others, under otherwise similar conditions. In fact, it is a positive relief to know that an error of a second, to say nothing of two, is not a matter of life and death.

My developer is made up as follows: Weigh out 2 drachms of pyrogallic acid, and put this into a 4-ounce glass measure or graduate; next weigh 150 grains of bromide of ammonium, and add this to the pyro. Then weigh  $7\frac{1}{2}$  grains of citric acid and put this to the other ingredients. Take up the measure and pour in water (cold or hot) up to  $1\frac{1}{2}$  ounces. Stir up with a glass rod till all be dissolved. Then take a clean 2-ounce dropping bottle, or one used for the same purpose before, and pour the  $1\frac{1}{2}$  ounces of liquid into it, and put in the stopper. This developer keeps good thus for months.

Take another dropping bottle, and pour into it about  $\frac{1}{4}$  ounce of strong ammonia (no water), and put in the stopper. The strength of this may evaporate by constantly using the bottle, so that it is best not to put much in at a time, and even to throw away the residue now and again, and to replenish from the stock bottle.

For use with a half-plate drop 24 drops of developer (which equals 4 grains pyro and 5 grains bromide) into the graduate, and add to this 4 drops of ammonia, and make up with water to 2 ounces. Then drop 5 drops of ammonia into a small graduate or any other suitable receptacle, and put this aside, and yet within easy reach. Take the plate out of the slide, lay it in the developing dish, and with a sweeping motion pour on the 2 ounces of developer. The ammonia is not enough to cause an overexposed plate to "flash out," though it may

prove enough to bring out all detail, and to finish development, and no more should be added if it is seen that this is likely to be the case.

If the plate be rightly exposed there is sufficient ammonia in the two ounces to bring out all details; and when this is done, but not till then, take up the small graduate and pour all or part of the five drops of ammonia, as deemed advisable, into the larger graduate, and pour the developer off the plate into it, and return to the plate. This will give any density required—or more, unless it is carefully watched.

An underexposed plate may not develop properly, so as to give a distinct image, with the two ounces mixed as above, for a long time, say two minutes or more. If this is so the remedy is evident. Get the other five drops of ammonia to work at once. If very much underexposed you may even have to use two or three additional drops of ammonia later on. I have never found more pyro wanted.

My microscope seems to tell me that the slower the development the finer are the particles of silver deposited on the lines of the picture on the plate. This deposition appears to want time, or else the silver forms in thick flakes instead of thin particles. Slow development then should be aimed at, if good printing plates are wanted. This also gives you time to see what you are doing and to have full mastery of the coming out of details. Slow development can thus easily be got by using as small a quantity of ammonia as will start the picture, and having once "got your finger on its pulse" you can by the use of a further small dose of ammonia slightly quicken its activity, or by the use of a larger dose put it into a violent fever. Fevers, however, are, to say the least of it, undesirable.

The utility of this plan is evident. There are but two bottles in use, and these small ones. The developer is in a concentrated form and easily managed. The mixing of the pyro and bromide is an advantage and not a disadvantage, because for the Ilford plates they seem to work perfectly in the proportion of four to five, and in this proportion only. And it is worth a good deal to have to watch the action of the ammonia

only, and merely to add, or refrain from adding this as occasion requires.

Do not forget to use the alum and citric acid bath (2 ounces alum, 1 ounce citric acid, 10 ounces water), to harden the film and to brighten the shadows; but watch its action carefully so as not to allow it to operate too effectually as a reducer of the picture. A second or two may suffice in this bath; or any time up to a minute may be necessary.

I have tried several other developers with these plates, and have been in correspondence with the Ilford Company, who have very kindly sent me two soda and potash formulæ which, however, though good, are not nearly so good as the ammonia formula. The plates, in fact, seem, somehow, to be made for the express purpose of ammonia being used.

I shall be glad to hear that my hints have been of use to brethren in distress.—*Amateur Photographer.*

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## THE MANUFACTURE OF LENSES.

MESSRS. R. & J. BECK.\*

IN the conduct of a journal such as the *Amateur Photographer*, many opportunities occur for the study of mechanics as applied to science. The special subject under notice—the manufacture of lenses—has recently received our attention, and we shall endeavor to give our readers the benefit of the instruction which was afforded us through the kindness of the Messrs. Beck, when visiting their factory at Holloway a short time since.

The works are extensive, and are fitted up with many very admirable pieces of machinery, designed for special work. Almost all have been the outcome of practical experience in the processes of manufacture, and are used to one end, the reduction of labor and the expediting of the work in hand.

On the occasion of our visit we had the advantage of the company of Mr. Conrad Beck for our guide; this gentleman, a member of the firm, has passed through

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\* The American agents of Messrs. R. & J. Beck are Messrs. W. H. Walmsley & Co., Phila.

every stage of the work done in the factory, having served his apprenticeship. He has entire control of the workmen, and is held in high respect by all the *employés*, many of whom have been in the service of the firm twenty-five years.

We were first shown the disk of glass, which is examined to detect air bubbles or veins; and, although the greatest care is exercised in this examination, so that the costly process of grinding and finishing shall not be commenced on a faulty piece of glass, the most rigorous test sometimes fails to discover the hidden "vein" or "cloud," and the work is proceeded with; and in the testing room, before the lens is put upon the market, a flaw may be discovered. The lens is then broken up, after costing the firm many pounds. No lens is allowed to go out of the factory with the slightest fault.

After the disk has been examined and passed, the edges are roughly chipped; it is then fixed in a chuck upon a lathe, and turned with a diamond, and ground with coarse emery to almost the curve required, after which it is again turned up with finer emery to the exact curve required for the finished lens, being held against a revolving "true tool." The next process is to carefully cement them upon a block with pitch, where they are ground with finer and finer emery, until the surface is very smooth. They are then polished with putty powder and moisture; this polishing is a long, tedious process, and is mostly done by hand. The lens or lenses, sometimes six or more, are fixed on to a block and set to the exact curve; they are then polished by means of a kind of cup worked over them. The work requires the greatest care, and only most experienced workmen are employed for it. When both sides of the lenses have been ground and polished, they are again cemented on to a chuck, and fixed into a lathe in such a manner that both surfaces are true, and the edges are turned with a diamond to the required size.

The "true tools" are most costly, and are made with the greatest precision, as upon their correctness depends the correctness of the lens; they are all worked out mathematically to true curves. At every turn in this department one becomes fasci-

nated with the beauty and exactness of the work done, and the skilful manipulation by the workmen of tools and machinery.

We now proceed to the testing shop, and are sure that many of our readers have not the faintest conception of the trouble that is taken, at least by Messrs. Beck, to make a perfect lens. Every lens is examined to see if any veins are in the glass which were not visible in the preliminary test; if so, the lens is discarded as useless. Next they are examined to see that the polish is perfect and that there are no scratches, or "bad metal," in the glass. Elaborate tests are made for size and thickness, each lens being tried in "true" brass gauges. These tests being all satisfactorily performed, the pairs of lenses are cemented together with Canada Balsam, which has been exposed to sunlight in order to bleach it and so render it perfectly colorless; they are then baked in an oven heated by steam up to a temperature of about 200°, remaining in that temperature from one to three days. After this operation has been completed they are ready for testing their optical properties. They are examined optically to see that the surfaces are accurately worked to spherical surfaces, and also to see that they are properly corrected for spherical and chromatic aberration.

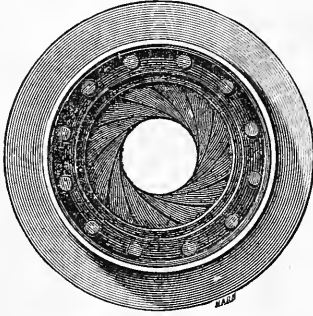
And still the tests are not completed.

The centring is optically tested; the pairs have to be matched, and at last they are ready for the mounts or cells. Having been placed in them they are again tested to see that they are under no strain due to the pressure of the mount. This over pressure of the mount is a sure means of ruining a lens.

We feel how feeble has been our effort to render to our readers even a faint idea of the care necessary to be exercised in the turning out of a perfect lens, but are sure that Messrs. Beck would be pleased to render any further details.

There is one point we have not touched upon, and that is the manufacture of the brass mounts for lenses. Messrs. Beck draw their own brass tube; that is to say, that by machinery a tube is drawn out of the sheet brass and afterward braized together; this has been rendered necessary because the

firm could not buy a brass tube that would stand the tests they considered it necessary to subject it to. All the brass work is cast on the premises and finished, even screws and pins; nothing is supplied to the firm "ready made."



A novelty has been introduced into their lenses in the shape of a diaphragm (see illustration) which dispenses with those troublesome pieces of metal, "stops." The "Iris Diaphragm" has for some time been applied to microscopes, and this is an adaptation of the same. By the rotation of a ring on the tube of the lens, any size stop can be obtained, the tube being engraved with a scale representing the sizes of the stops.

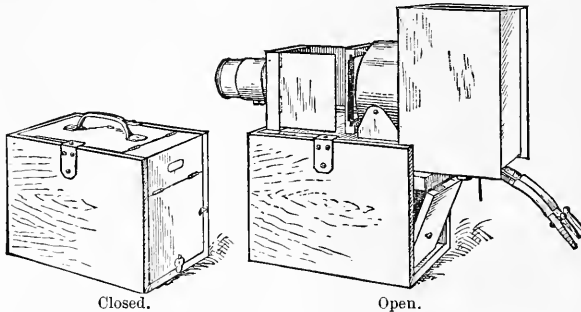
established as manufacturers of optical and scientific apparatus for many years, and were awarded a medal for their work as far back as the 1851 exhibition.—*Amateur Photographer.*

### IVES' PATENT FOLDING OPTICAL LANTERN.

THIS lantern was devised by Mr. F. E. Ives for his own use, and is now placed on the market because some who have seen it in operation have expressed a desire to possess one. Its chief advantage is that it can be folded up, forming its own carrying case, which is only about one fourth as large as that of the most compact lime-light lanterns previously in use. It has lenses and jet of the usual size and best quality, and will project the regular  $2\frac{7}{8}$  inch lantern slides as perfectly as the largest and costliest lantern that has ever been constructed.

The well known inventor also gave us the ether saturator. He says of his lantern:

"It is not expected that this lantern will suit all tastes as it is well known that some prefer to use the largest and clumsiest of old-style apparatus simply because a great mass of brass-bound panelled and polished walnut or mahogany presents an imposing appearance, which is more pleasing to them



Closed.

Open.

This notice has already exceeded in length our original intention. Still there is more to be said about Messrs. Beck's work, but as we have headed this article "The Manufacture of Lenses," we will not upon the present occasion enter into other matters.

The work in the factory is of the most perfect kind, and the lenses will shortly be as well-known in the English market as they are abroad. Messrs. Beck have been

than efficiency and convenience. My lantern is well built, neat, strong, practical, and convenient to operate. It can be conveniently carried about in the hand, or in a small valise with lantern slides, ether saturator, folded screen, and other requisites. It is the only lime-light lantern that can be used in this manner."

It can be fitted with attachment for long-



focus objective, if desired. Certainly it is very compact and should be examined by intending lantern purchasers.

### ON THE PROPER TIME FOR EXPOSURE OF DRY PLATES.\*

BY LIEUTENANT C. L. BRUNS, U.S.N.

CAN a close approximation of the time of proper exposures be determined scientifically?

The object of this paper is to give briefly a history of some personal experience in this direction.

I would premise that the practice of photography is based entirely on variables, which is particularly unfortunate with the amateur, whose work is only occasional and with subjects constantly changing. He, therefore, learns nothing definitely by his previous work; his experience is of but little service to him, as he is constantly confronted with variables.

To reduce the variables has prompted me to experiment upon the actinic effect of light. I have tried several plans, and finally adopted a very crude sensitometer, which, however, has served me very well.

The sensitometer referred to is albumen paper freshly prepared for each day's work. This involves but little trouble or time; a strip cut from a sheet of albumen paper, say one inch by six, put in a jar containing the sensitizing solution (nitrate of silver of some fixed strength) for an indefinite time, is drained and dried, and not to be fumed. Place the sensitized slip of paper between two flat pieces of wood bound together with rubber bands; pull the paper out to protrude say one half inch. Expose this to the sun until it has blackened all it will, and call it actinized. Now pull out one-half inch more, expose it to the sun, and note the time. I find it convenient to stand back to the sun, or facing north, and place the papers on the ground at a distance of four feet from the point where I stand, and maintain this as a constant, and then wait until the newly exposed paper reaches the color of the first, or is actinized, noting the

time, which interval I will say is one minute. Suppose, now, I desire to take a copy of a picture in my room. I have here an ordinary plate holder so arranged that any portion of the sensitive plate may be shielded, while the rest may be exposed. In the dark room I shield all but the lower fourth part of the plate, I then expose it in the camera, say ten seconds, and take the plate to dark room, raise the shield, exposing this time two-fourths, or one-half of the plate. Returning to the camera I expose ten seconds, thus giving twenty seconds to the first fourth, ten seconds to the second fourth, proceed the same with the third fourth, exposing ten seconds, then the fourth fourth, or the whole plate, exposing a few minutes with cap on, or it need not be exposed in camera at all. In the former, on developing, if the camera leaks it will show on the fourth fourth; in the latter, then, the dark room lets in actinic light. Now the first fourth being exposed three times, each of ten seconds, or thirty seconds; second fourth twenty seconds; the third fourth to ten seconds, the plate being developed will show which section was most favorably exposed. Assume this section to be the second fourth, or twenty seconds. We now arrive at the conclusion that when a piece of sensitive paper takes one minute to actinize, then say Mr. R.'s plate, registering sensitometer sixteen, requires twenty seconds for a proper exposure. On some subsequent occasion I desire to make a copy of a similar subject. Suppose a paper, the time to actinize which is two minutes. I know that with R.'s plate, registering sensitometer sixteen, when the paper actinizes in one minute it should be exposed twenty seconds, and from the following proportion the proper exposure of the plate of subsequent day is determined, viz., one minute to actinize is to two minutes to actinize, as twenty seconds (the trial exposure) is to the proper exposure, or forty seconds, which is the time to properly expose on the subsequent day. Therefore, all that is necessary on the subsequent day is to focus and expose forty seconds, and we have a properly exposed plate.

For outside work, using slow plates, follow the same procedure, but expose three plates. For economy use small plates. Make expo-

\* Read before the Society of Amateur Photographers of New York.

tures of sensitive paper before and after the plates were exposed, to be certain the conditions did not change. Obtain the time to actinize the paper, and the time of the best of these plates. This gives a positive condition for that plate, and that character of subject. On a future occasion, by exposing a sensitive paper, the actinic condition of the light and the time of exposure is obtained by the law of direct proportion. That is, the time of exposure of sensitive paper to a certain actinic effect on the trial plate, is to the time of a subsequent exposure of paper to an actinic effect, as the time of proper exposure given by the trial plate is to four, or the proper time to expose the plate on a subsequent occasion, the character of subject being considered similar. The character of subject may be determined to suit the individual taste; for instance, a marine view, clouds, foliage, bright sun-lighted scene, or scene entirely in shade. If trial exposures are made for each, and carefully noted, there should be no difficulty, by reference, to obtain the time of correct exposures.

For rapid work I place great reliance on the proper selection of the shutter-spring. Its action should be uniform. It does not matter so much how fast it is, but that its tension should be constant. Fix the spring permanently. A rubber band is bad; it is deceptive, and subject to wide changes and irregularities. Graduate the time by the diaphragm, and not by varying the tension of the spring. In the trial exposures use, say,  $\frac{1}{8}$ ,  $\frac{1}{4}$ ,  $\frac{1}{2}$ -inch stops. The areas of these are to each other as the squares of their respective diameters, and are respectively  $\frac{1}{64}$ ,  $\frac{1}{16}$ , and  $\frac{1}{4}$  of an inch. The amount of light that passes through stops is directly proportional to their areas, hence the  $\frac{1}{8}$ -inch stop is four times faster than the  $\frac{1}{4}$ -inch, and sixteen times faster than the  $\frac{1}{2}$ -inch stop.

Now, proceed with the trial plates.

*Interiors.*—Expose the sensitive paper in the room on the wall directly in front of the lens. Make a trial exposure as explained under copying. Let the exposures be, say, half hour apart, or what the experimenter may conclude as best. Note the time it takes the sensitive paper to actinize and the time of the exposure as given by

the trial plate, and then by rule suggested you can obtain the time for proper exposures in the other interior.

In conclusion, I would recommend you to make a copy on the shielded system as applied in this plate holder, and you will be more than pleased to note the effect of the developer and the results. You will also see how much longer the zone of proper exposure is than you believed. You can tell what the actinic difference is; whether your windows are open or shut in the studio; and the range of time of any particular plate by which a proper picture may be secured.

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### REMARKS ON LIEUTENANT BRUNS' PAPER.\*

BY D. H. WALKER.

To reach the maximum exposure any plate will stand has been one of the difficulties in the way of all photographers. When you have put your plate in the holder, the first question presenting itself is: "What stop shall I use?" Next: "How long an exposure shall I give this plate?"

If you are in doubt you ask your learned and experienced friend near by, and he puts his finger alongside his nose, looks wise, examines the sky as if he were in search of a comet, and then coolly suggests: "Well, I guess (and it is all guess) I'd give her ten seconds."

Now your own idea had been two minutes exposure. If you ask four different persons, all of equal skill, they will "guess," at a variance of from 50 to 100 per cent. Now how ridiculous this appears to be, and is. Here is a science based upon exact chemical laws, and yet we are constantly guessing.

How to overcome that part of the guessing which relates to the exposure of a given plate has been the subject of inquiry and experiment by Lieutenant Bruns and myself, with the object of presenting the results for your information and discussion.

Experiments made yesterday by us demon-

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\* Read before the Society of Amateur Photographers of New York.

strated that to actinize sensitized paper required 107 seconds. A Carbutt B plate (16 sensitometer) exposed in parts for two, four, and six seconds, on development gave best results and clear detail on that portion which was exposed for four seconds. Thus we had the two constants or non-variables, for that kind of plate, they being 107 for the paper, and four for the plates. Now, these results are to be utilized as the basis of all calculations for exposure of such plates; and the process of arriving at the correct time for exposure on some other day, when the light may be different, will be as follows: Say next week on a dull day I wish to make a correct exposure of a similar plate. To do this I first expose a piece of the sensitized paper as explained. Say it takes five minutes to thoroughly actinize it, which is equal to 300 seconds. Now I have learned that this day it required 300 seconds to do what on another day requires only 107 seconds. I, therefore, make the figures to ascertain the required exposure to be given, to wit, as 107 is to 4 these being the constants) so is 300 to the required exposure, and the answer is thirteen seconds. So that yesterday I would give four seconds exposure, and next day, as per example, thirteen seconds.

With such experience as we have had, we feel satisfied this method is approximately correct. And I am certain, as experiment has proved, that the larger the constants the greater is the margin for correct exposure of the plate when taking a picture. That is, if the constants are ten times greater than those given, say 1,070 seconds and 40 seconds, the chances of correct exposure are increased in that ratio. An experiment made to-day with a new lens and camera showed that it only required 90 seconds to actinize the sensitized paper, and that a Carbutt B plate exposed seven seconds with the smallest stop (being only  $\frac{3}{8}$  of an inch in diameter) gave the best negative. The two figures being used as new constants, a further experiment was made by exposing the sensitized paper in the shadow of our working room. After exposure of 18 minutes and 42 seconds, the paper showed partial actinization. As time was pressing (at 4 o'clock P.M.), a piece of

paper was taken into the sunlight and was allowed to actinize up to an apparent similar extent, which required 20 seconds. At the same time a fresh piece of paper required two minutes in sunlight to become fully actinized. It will, therefore, be noted that the piece of paper exposed in the room, which had been partially actinized, if taken into the sunlight would have reached actinization in two minutes or 120 seconds. And as it required two minutes to fully actinize, it had been exposed to within  $16\frac{2}{3}$  per cent. of complete actinization.

Multiplying this partial actinization of the paper (say 16.67) by 6, we show that it would require about 112 minutes, 6732 seconds, to actinize in the shadow of the room. Again using these figures, we show that as 90 seconds required to actinize in full sunlight is to 6732 seconds, so is the time of proper exposure determined this morning, say seven seconds, to the time of proper exposure this afternoon in the shadow, which is 8 minutes and 44 seconds.

To summarize these figures, we may say that the simple sensitizer adopted, that is, the silvered paper, will give a very near proximate of the proper time for exposure of any given plate when taken in connection with the standard time of actinization, which we call a constant, and the exposure of the plate mentioned, as in the shadow of the room, was done without any other than this simple means. There need not be any doubt as to the use of the stops; one single stop will do for all exposures, when once this constant is obtained with any one of the series. So far as we are able to judge at this time, we prefer using the pin-hole stop, which has given the results mentioned above. If any man ask, "Well, what of all this?" we can answer that it is an approximate method of arriving at the proper time for exposure of a given make of plates, and that too without any "guessing." In presenting this for your consideration we are not unaware that others have experimented in the same direction, nor that the emulsions on plate and sensitized paper are chemically different, but we are anxious to broach the whole subject for your consideration, hoping it may lead to investigation and some useful result.

## THE SWING-BACK.

BY JOSEPH HARRIS.

POSSIBLY there is no appliance of photography so grossly mismanaged by *all*, professionals and amateurs alike, as the swing-back.

Some people seem imbued with the idea that, no matter what the building, no matter the situation of that building, it must be photographed, and the plate must contain its various lines—*somehow*. And in the word *somehow* is the key to the whole proceeding.

Unfortunately, these destroyers of architectural beauty and of the optician's art have some poor warrant for their vandalism. One writer on this subject distinctly asserts that the camera may be "tipped up" to bring the swing-back into play. But, even in play, there is no vital necessity to bring the work of others into disrepute.

In landscape photography, in architectural photography, in all out-door operations, in the photographing of machinery, in the reproduction of pictures, the rule is a hard one, and never to be relaxed except under very rare and exceptional cases. Keep the camera square, and if the eye be not true, work with a spirit-level to ensure absolute accuracy in this most important particular.

For the student unacquainted with the laws of perspective to realize the force and value of the teaching to keep his camera square or level, let him stand in front of any edifice, let him even contemplate the modest doorway of his own *lares* and *penates*, and note the effect which the vertical lines of either of these subjects convey to his eye. Again, let him sit down with the body at an angle from the vertical lines in the architecture before him, he will be compelled to look up to his subject, and, as a consequence, lines which before impressed themselves as vertical now appear as if falling forward. This same effect of falling which the human eye conveys to the mind, the lens conveys to the plate. The result of this falling may be partly dodged by a clumsy resort to the swing-back, but the lens, the eye, or point of sight is still look-

ing up, to the utter destruction of architectural truth and beauty.

It has been written that when a subject contains no parallel vertical lines, and when it is seen that it is desirable to take in more of the upper part of it, it is best to tip the camera to a moderate extent. In other language, if there be too much foreground in the picture, perpetrate a deliberate fault if there be no lines in the composition which will betray the want of skill or the worse than clumsy expedient which has been resorted to, so that the picture is secured on the plate—*somehow*. If there be too much foreground, keep the camera level. Raise the front till due balance be attained, and suffer the lens to do its work without violation of its perspective.

In one of the photographic guide-books for bewildering the student, it has been observed: "Of architectural subjects it must be taken as an absolute law that if it be desired to have the vertical lines of the subject rendered as parallel lines in the photograph, the ground-glass of the camera must be kept vertical, whether this object be attained by keeping the camera horizontal and raising the front, or by tipping the camera up and swinging the back so that the latter returns to the vertical." The evident idea of this author is that there is a *choice* of method for the rendition of these vertical lines; and that so long as the back of the camera be vertical, the instrument may be "tipped," and the swing-back is to bring all right ever afterwards, as the story-book tells us.

Don Juan was oft engaged in pursuit which, had he lived in these degenerate days, would have made him very much a correspondent in our savory divorce court. On one occasion his valet reproved, as gently as a valet would do under the circumstances. The Don threatened the soundest horsewhipping that ever man received on a repetition of his servant's "morality." The valet's reply was a model of good sense. "I perfectly understand you, sir; you speak clearly, which is an admirable trait in your character. You put things beyond the possibility of mistake!" In considering the swing-back it will be advisable to put the use of it and the misuse of it "beyond the possibility of mistake."

Now, when the photographer "tips" his camera—swing-back or no swing-back—his lens is out of position; it is looking up, and the effect he will secure on his plate will be false in architecture, false in art, and false in optics, and his result will be one absolutely repellant to the cultured eye. It is not a question of transcribing a certain building on a given sensitive plate somehow, only transcribe it. Tip the camera and swing the back, or do not tip the camera and do not swing the back—only keep the back vertical, get the subject on the plate, and never heed the angle at which the lens looks at the view. This is the advice given to the amateur in some of the regulation guide-books.

This state of things recalls an incident which once took place in one of those grand old places, an English cathedral. It was Sunday afternoon, and the photographer, ever present, even at a cathedral service in the nave, but he was in a very proper frame of mind, hungry for whatever crumbs of information might be afforded him by "authority," and which authority is now in one of the most distinguished positions on the bench. The usual text was read out, divided into its three heads, and this was the explanation vouchsafed: "I do not know what this language appears to you, my brethren, to mean, but to my mind it seems," etc. Exactly so, and this is a very "safe" interpretation. Another tipping illustration, tip it either way, my brethren, it matters not, so that we keep our backs vertical. Once more has it been observed, "it may be said that, so far as it is possible to do so, the desired result should be brought about by raising the lens, as the latter is thereby less 'strained,' so to speak, than when the camera is 'tipped' and the back is used. What is meant by saying that it is less strained is that its powers are less taxed, so that it is possible to get equally good definitions with a larger stop." This quotation is a fair specimen of the average instructor's language when engaged in the congenial effort of imparting knowledge, the details of which the would-be teacher has not yet mastered. It is intelligence, certainly, but scarcely worth the proverbial candle to be informed that to put a given thing to an illegitimate or outrageous purpose strains that thing. The

more correct phraseology would be that the object has been misused. We strain the powers of an instrument when we tax those powers beyond the limit of capability intensioned by the constructor of that instrument. But if we attempt an absurdity out of those powers, there is no "strain." We misuse, and thereby admit unfitness for our vocation.

Now it must be taken as an "absolute law" that from the peculiar construction of the human anatomy it is another "absolute law" that we best survey the architecture of our public buildings by placing the body parallel with the vertical lines of the building it is our desire to contemplate—this is the natural and accepted method of studying architectural beauties, standing the body vertically with them. There is no saying to what evolution may not bring us; our centre of gravity may be altered in the course of a few more stages, and instead of standing at a right angle with the ground, we may pose at some grave angle the degree of which must rest with the distant future, and expressed at the present by the words *quod erat demonstrandum*. And when this state of things comes to pass the happy time will have arrived for the "tippers" of cameras, the angular position will have become the natural one—nature will be surveyed, say, at an angle of sixty degrees, and tipping the lens will follow as a matter of course. But till this be our natural position neither will it be the natural position of the lens, which should be so placed to see things precisely as we are accustomed to see them.

The guide-books further inform us that "there are two limits to the amount which the camera front may be raised—the first a purely mechanical one, depending on the fact that in all cameras there is only a certain range given." There is a profundity of intelligence, an intricate mastery of subject in the foregoing brilliant passage which is positively overwhelming. Divested of its exuberant verbosity, it would read more intelligibly that as the length of the slot limits the extent to which the rising front can be adjusted, it would be advisable to see that this slot be about three inches in length, range enough to dispense with tipping in all ordinary purposes.

Another quotation informs that "it is evident that if a lens will only just cover a plate when it is opposite the centre thereof, if the lens be raised, the lower part of the plate, representing the upper part of the subject, must remain blank." The mind of the writer who penned that collection of words must be a complete blank upon the subject. There are some individuals—inexperienced individuals—who, when about to photograph a building—such, for instance, as the choir of a cathedral—whole-plate size, immediately rush to the conclusion that a whole-plate lens of some form is the one adapted for the purpose. And from this one mistake springs the delusion that a lens cannot be raised beyond a certain limit measured by the small perceptions of the people aforesaid, for fear it will give a *blank* upon a portion of the plate!

The whole-plate lens is not a factor in the question. The point to be determined is the focal length of lens which will best secure the leading features in suitable proportion to the size of the picture to be taken, and the objective which best gives this result may be one of the wide-angles capable of covering a 10 by 8 plate. But with this increased covering power we can afford to raise the front at will, regardless of "blanks," and still retain the detail in fine definition without resort to the "tipping" business, always excepting that vouchsafed to the verger in charge, and without bringing "into play" the abominable swing-back.

But always have a swing-back to the camera; *if* wanted it will be wanted very badly. Experience for thirty years has patiently and uncomplainingly carried the swing-back: memory can call to mind but one illustration of its use.

The question now arises, supposing an exterior be desired, as of a cathedral, this being among the most difficult of subjects; a southeastern view—say Lincoln—to include the Chapter-house on the northwest, the east window, the southern facade, the Great Tower, and the two western towers in the distance. This is a "stretch," and a lawful one, for a lens. The plate shall be 12 x 10: how is the work to be accomplished? Firstly, writing in English, it will be advisable to dispense with the form "tip." This

word Webster defines to fall on one side, to fall headlong. Now, to topple the camera headlong is a proceeding we should be loth to adopt with a valuable instrument. If there be cause to place them out of the level, we *tilt* them. The English are a strange people, and quite as prone to misuse their language as their lenses and swing-backs. It should always be remembered that the slipshod style of diction is never the most effective. Tilt, Webster defines to incline, as at an angle; to raise, as a cask, etc.

To return to Lincoln, and in order to include the view suggested—one of the grandest to be obtained of the edifice—it will be imperative to stand at an extreme southeast corner of the surrounding grounds. The camera stand must be of full length. The camera, absolutely level, will require the front fully raised to obtain sky above the Great Tower. The lens, preferably a wide-angle Doublet of Ross, should be one sold to cover 15 by 12, so that, although the position of the objective be out of the centre of the plate, the magnificent tracery in the tower may be rendered in perfection. There is no difficulty in this and kindred subjects if the operator knows how to proceed with his work. Suppose in a case of this description that from some cause the whole of the desired subject cannot be brought within the limits of the plate, that the focal length of the lens is too great, that the power to raise the front sufficiently is limited by the "mechanical arrangement," that the stand is too short, and the novice is momentarily increasing in nervousness and desperation to secure his picture somehow—shall he resort to the tilt and the swing-back, shall he portray an architectural abortion as the quickest way of getting out of the muddle, shall he give the building the appearance of falling over? By all means no. The resources of civilization are open to him in the shape of a respectful request that he may take his picture from a neighboring window. To go at a rush for the tilt and swing-back business is to seek admittance to that band of adventurers who, in the words of Sydney Smith, are ready at a moment's notice to undertake an operation for the stone or to take command of the Channel Fleet.

Before alluding to the very rare occasions

when the swing-back *must* be used, it may be well to interpolate the language of Sir William Newton at the first meeting of the Photographic Society in 1853: "A photograph before it can rank with a picture must be not so much chemically as artistically beautiful. . . . The student in art before he take up the camera as a means of advancement in his profession, should acquire considerable power of hand with a view to draw with ease and correctness the outline of any subject he may wish to represent. If the student imagine the camera will help him to this desirable attainment, without the requisite study on his part, he will find himself much mistaken when, perhaps, it may be too late to repair the injury." This subject was considered by the writer in the *Camera* for July, 1886.

If it were desired to photograph a lofty building situate on high ground, and the only point of view one where the ground lies low, and no windows at hand where a position can be taken, no possibility of erecting platform or staging, and it is imperative the view be taken—then, and only then, is their justification for the photographer's dodge, and his last resort—the tilt and the swing-back. But let this dodge be carried out with judgment. There is no necessity for too much of it. The building is on an eminence; keep it so in the photograph, and do not dwarf its surroundings by tilting to such an extent that the edifice stands in the centre of the picture.

A supposed typical case has been brought forward by one of the photographic writers to illustrate the "bringing into play" of the swing-back. "The scene is a landscape, there is a foreground not many feet from the camera, the middle of the picture filled with a portion of ruined wall at some little distance, whilst behind that is to be seen at much greater distance a rugged crag rising nearly to fill the whole picture."

Passing the clumsiness of diction in the "rugged crag rising nearly," let us consider the advice given—of course the swing-back is to be used to bring foreground, wall, and crag in focus. Focus again! If this scene were to be photographed the proceeding would be to remove the camera to such a distance that the "piece of foreground"

measured its depth from the point of station in yards instead of feet. If choice of position were not open, the operator need not concern himself about the proximity of the said "piece of foreground" to the camera, as it would be false art to attempt therein definition of detail or photographic "sharpness." It is not the usual practice with artists to define minutely "pieces of foreground," whatever that term may mean, when those pieces of foreground are very close to the point of station. Boldness of treatment, either by camera or by brush, conveys the idea of distance from the ruined wall, or the "rugged crag rising nearly."

There is one other swing in the back of the best modern cameras which may be mentioned. This is the lateral swing. The lateral swing enables the operator, having selected his point of view, to dispense with some portions of the picture on either side which he considers injurious to the general effect. And this use is perfectly legitimate. In the case of a sharp piece of perspective, the lateral swing empowers the photographer to assist the work of the lens by the inclination of the back in the direction of and vertical with the vanishing point of his picture. And this use is perfectly legitimate. —*The Camera.*

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### QUESTIONS TO THE CRAFT.

IN order to diffuse information of value to many of our readers who are continually inquiring—those who have not the advantages of conventions, or even contact with other photographers, once more we propose the questions which follow to our more privileged readers, and ask a generous response to them, for publication, for the sake of the real good which such action will accomplish:

1. Are you making large portraits direct in the camera, *i. e.*, using a larger lens than 14 x 17, with large dry plates? If so, what is your method of lighting and manipulation, and your experience as to the quality of your results compared with enlargements from small negatives?

2. Do you obtain as satisfactory results, in portraiture, with very rapid plates, as you do with slower ones?

3. What is your most successful method of development of rapidly exposed plates?

4. Have you found an increase of business and profit with the increased facilities for making large work more expeditiously adopted by you?

5. What has been your experience, both in practical results and in the acceptance by the public, of bromide enlargements?

6. What with platinotype prints?

7. Do they increase the revenue from your stock of negatives?

8. Please detail some of your experiences in making pictures of children.

9. In printing dry-plate negatives wherein does your treatment of them vary from your practice with wet plates?

10. What variations do you make in your manipulations in cold weather from your practice in the mild seasons?

11. What are the prospects for the coming year?

EDWARD L. WILSON,

853 Broadway, New York.

*Answers.*

WE like the PHOTOGRAPHER very much; every number contains something that sets us to thinking and studying. The greatest trouble with it is, it sets us to wanting so many things we can't get: books, accessories, new lenses, etc., that at times it is a real aggravation.

You have asked some "Questions to the Craft," and we have taken deep interest in the answers.

We are not making pictures larger than 8 x 10, but expect to experiment with enlargements and direct work as soon as we can afford the apparatus.

During the winter we thought we had better success with plates of medium rapidity, but lately we think we do as well, or better, with the most rapid plates we can get, and curtain down and stop down till we require about four seconds exposure. Of course, with babies in this wrigglesome age, we open things up and work quick. Such plates fog very easily. Our dark-room light faces the skylight and is composed of a ruby glass, two sheets of yellow tissue-paper, and two sheets of green paper. This does not tire our eyes as it did when all the paper was yellow.

When we think it probable that a plate has been underexposed, we soak it in water a minute or two then wash under the tap. Then we pour on fresh developer of normal strength, and if it comes up slow we put water into the tray; if very slow, much water. If it comes too quick we add bromide or old developer.

Our developer is pyro and sal soda with yellow prussiate of potash.

We don't have any trouble in getting pictures of little babies or of children old enough to get them interested in a picture of themselves. Some of those about two years old are little terrors, but most of them we get without any trouble. We get to talking with the child and get its friendship, if possible. While arranging backgrounds, chairs, curtains, etc., keep up a stream of talk. When all is fixed, wonder how baby's picture would look in that chair, and four out of five will want to climb into the chair to see. Then focus, and keep talking; then put the holder in the camera, and drop the bulb of the shutter in a convenient place on the floor and keep talking; then we get out our bell, music box, or portion of our menagerie as may be necessary; put the ball of one foot over the shutter-bulb, resting the heel on the floor. Then we do our fine talking, having both hands to show the animals, and when the right expression comes, we press the bulb with the foot, let it up, and the little darling is ours. We do not see any pictures of such children in the magazines. Why is it?

The so-called baby pictures of children from four to seven years old are as easily obtained as of older persons. In fact, it is easier to get a natural expression in a child than in an older person. We would like to see some of the work our "way up" photographers do when their subjects will not allow the headrest, and persistently keep a hand or foot in motion, and who, just at the right time, poke a fist into their mouth or eye, and will not be inveigled into taking it away.

As to prospects for the coming year, they are very good, providing there is not too great an importation of photographers into these little new towns around us. Last fall there was only one gallery in this county,



row there are four, and more coming. But we can stand as big an increase as any county we know. We will send you a map with our county colored with pokeberry-juice. You see we are right in the centre of Kansas, and Kansas is in the centre of the world. We have electric lights and soon will have street cars and water works. We have two railroads, and soon will have two more. We have the richest soil, the best crops, the most enterprising men, the loveliest ladies, and the sweetest babies of any county in the world. And we take the PHILADELPHIA PHOTOGRAPHER. Why should we not prosper?

Yours truly,

LEWIS BROS.

GREAT BEND, KANSAS.

## PRACTICAL POINTS FROM THE STUDIOS.

**PREPARATION OF THE COLLODION (Taupenot proces).**—For this process it is necessary that the collodion should be a little more fluid than the ordinary collodion. To obtain it in this condition we take

Ether at 62° . . .	3 ozs. 1 dr. Troy.
Alcohol at 40° . . .	6 drs. 25 grains.
Iodide of Ammonium	15 grains.
Bromide of " . . .	4 "
Gun Cotton . . .	12 "

Agitate thoroughly, and allow to repose for twenty-four hours; now decant, and give another repose of twelve hours. The collodion will then be perfectly limpid.

THE manner of drying a negative has a great influence on the intensity of the image, A negative dried near a fire is stronger than if dried at the ordinary temperature. It is, therefore, possible to strengthen a negative in this manner without making use of mercury. It suffices to wet it several times, and to dry it each time as quickly as possible.

WHEN negatives intensified with mercury become yellow, the varnish is first removed by means of alcohol, then the plate is plunged in water for a few moments, and afterwards covered with subhydrate of ammonia (operate in the open air, on account of the odor), and the image will immediately retake its

primitive appearance. Finish by a thorough washing.

DR. J. M. EDER recommends the following process to give great brilliancy to prints on albumenized paper; take

White Wax . . . .	100 parts.
Gum Damar Varnish . . . .	4 "
Rectified Essence of Turpentine . . . .	100 "

To preserve this mixture, place it in a very dry bottle; when it thickens add a little essence of turpentine.

**EOSINE PLATES.**—It is now possible to make eosine plates two or three times more intense than ordinary plates. Dr. Vogel and M. Obernetter have succeeded in making at midday, during the short days of winter, instantaneous views on eosine plates, when ordinary plates gave only silhouettes. Dr. Vogel says that it is difficult to obtain, in the shops, pure erythrosine; he recommends adding to the sensitizing bath but one-third of the quantity of the silver which saturates coloring matter. As a developer he recommends:

### Solution 1.

Water . . . .	17 fl. ounces.
Sulphite of Neutral Soda . . . .	3 ozs. 2 drs. Tr.
Pyrogallie Acid . . . .	216 grains.

### Solution 2.

Water . . . .	34 fl. ounces.
Crystallized Carbo-nate of Soda . . . .	1 oz. 5 drms.

For a plate 13 x 18 centimetres, take 5½ drachms of No. 1 and 11 drachms of No. 2.

It appears that the sun's rays have such a decided action upon the aqueous solutions of salicylic acid, such as are often used in medicine and for disinfecting, that a weak solution loses all its acid after a longer or shorter exposure to light, and one or two drops of ferric chloride do not produce the characteristic violet color. It has been observed that a solution of salicylate of lime, made with ordinary water, and exposed to light, is also rapidly decomposed, and at the end of a few weeks the bottle contains a great quantity of white and brown filaments (algæ and bacteria).

**TONING EASTMAN PRINTS WITH PLATINUM.**—M. Léon Vidal who originated the idea of toning positive prints on Eastman paper, with platinum, to increase their permanence, makes use of a platinum bath composed of 15 grains of bichloride of platinum, 2 quarts of water, and 5 to 7½ drachms of chlorhydric acid. His process has been taken up by the son of the eminent Dr. H. W. Vogel, who, in *Photographische Mittheilungen*, advises plunging the prints for from fifteen to twenty minutes in a bath of 15 grains of double chloride of platinum and potassium, 1 quart of water, 3½ fluid-ounces of chlorhydric acid. Wash, plunge into a solution of bichloride of copper at 15 for 100, fix, place in a solution of alum acidulated with chlorhydric acid, and wash. M. Léon Vidal, who had at first tried the double chloride of platinum and potassium, gave a preference to the bichloride of platinum, with which he obtains a greater quantity of platinum substituted for the silver. Besides, this process has enabled M. Nadar to obtain finer prints than by the normal Eastman process.—*Journal de L'Industrie Photographique*.

**THE PERMANGANATE OF POTASH AS A STRENGTHENER OF NEGATIVES.**—The following may prove useful to your readers:

One day, having made a positive by contact and having developed with ferrous oxalate, I plunged it, when dry, into a dish containing a solution of permanganate of potash, such as is used for removing the color of the silver bath. To this permanganate of potash I had added a little water, and my positive acquired an ugly yellowish-brown tint. I removed the positive from the bath and took the notion of pouring on it a little of the iron bath. My positive now became immediately of a dark brown color, and, by transparency it had become very greatly strengthened without injury to the whites. I repeated the same operation with another positive, and this time, by prolonging the immersion in the permanganate, then in the iron bath, the strengthening was very strong; the blacks of the positive became excessively intense, opaque, without injury to the whites. By using certain proportions this strengthener seems excellent

for strengthening the negatives of engravings, and all those in which great contrasts are required.

Another strengthener.

Water . . . . . 2 fl. oz. 5 drachms.  
Sulphate of Iron 185 grains.  
Chrome Alum . 31 grains.

The negative having been developed with pyrogallic acid, then fixed in the hyposulphite, is plunged, without having been previously washed, into the above solution. At the end of a few minutes it will be cleared and at the same time strengthened. Should it be found too hard, it may be reduced by placing it in the following solution.

Water . . . . . 1 fluid ounce.  
Chlorhydric Acid . 2 drops.

—*Le Progrès Photographique*.

**A NEW SUBSTANCE TO RENDER PLATES ISOCHROMATIC.**—At the London Photographic Association Mr. Wellington announced that he had discovered a new substance suitable for giving to plates very intense isochromatic properties; he showed some samples of his work, but has not yet made known the nature of the substance used. It is probably one of the aniline colors soluble in alcohol, or else a mixture of two or more of these coloring substances, with or without ammonia. There are perhaps fifty of these coloring matters which might be experimented with, offering some chance of success.

**WASHING PLATINOTYPES.**—Some correspondents have written to us and asked to what cause should be attributed the yellow color of their platinotypes: It arises from the salts of platinum and iron in excess with which the paper is impregnated. The prints may be restored to their original whiteness by thoroughly washing them in a bath (from 3 to 4½ fluid drachms of pure chlorhydric acid for 1 quart of water), which is to be renewed until the prints have again become entirely white. They are then rinsed in pure water, several times renewed, until all traces of the acids completely disappear, which it is easy to ascertain by means of blue litmus paper. If all acid reaction had not disappeared, it might

end by injuring the fibre of the paper and converting it into hydro-cellulose. No alkaline reagent (carbonate of soda, carbonate of potash, ammonia, etc.) should be added to the waters of the washing, under penalty of precipitating, in the form of carbonate or oxide of ochreous iron, the chloride of iron remaining in the paper.—*Journal de L'Industrie Photographique.*

**THEORY OF DEVELOPMENT.**—In a lecture on photographic chemistry, Mr. R. W. Robinson, in speaking of development, has just said: "Whatever may be the nature of the latent image *it is certain* that when the developer acts upon it, it is reduced to the state of metallic silver, whilst the halogen body is combined with some other body. In chemical language the developer is oxidized at the expense of the argentic compound of the latent image."

**EXPLANATION OF THE REVERSED IMAGE.**—There is a curious phenomenon known by the name of *reversed image*. It is when the developer produces a positive instead of a negative. This happens after an excessive exposure and Mr. Robinson explains it as follows: During a long exposure to the light of a gelatino-bromide plate, for example, the exposed bromide acts on the gelatine and produces peroxide of hydrogen which is a substance possessing great oxidizing power. As this product is formed in greater abundance where the surface of the plate receives the most light, it there oxidizes the image, that is to say, the reduced argentic compound, and we no longer have an image suitable for development; in this case the developer produces a positive by acting on the other portions of the plate.

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### OUR PICTURE.

Some time ago Mr. Charles E. Orr, Sandwich, Ill., favored us with one of the most charming outdoor pictures we have met with in our experience. It embellishes our current issue, and is called "Threshing Time." It represents the culmination of the harvest, when the well laden ear must yield

its golden grain to the persuasion of the unrelenting machine.

There are but few of our readers who are unfamiliar with such busy scenes as this, and the majority of them will agree that Mr. Orr has caught this one at its very best, and has also done his very best.

Mr. Orr has worthily won a very bulky wreath of laurels by his exploits in instantaneous photography. A few months ago the *Chicago Herald* devoted over two columns to his work—"A rural photographer who could give points to most of his city brethren"—illustrating with photo engravings from Mr. Orr's photographs of a train running at fifty miles an hour; trotting horses; windmills; base-ball scenes, and with "Threshing Time."

We will give way to our western contemporary, and permit him to state his views of the picture before us. He describes it thus:

"The beautiful scene at 'Threshing Time' is also instantaneous. The city reader who never saw a threshing may here behold one 'taken from life.' The man on the straw-stack at the right of the picture, is pitching the bundles of wheat toward the machine. Another man passes the bundles along, a third cuts their bands with a knife, or removes the wire if the grain was harvested by a self-binding machine, while the fourth feeds the stalks of grain, heads foremost, into the maw of the thresher. The grainless straw passes up the straw-carrier, and there four men stand, pitchforks in hand, to shove it backward out of the way, and to shape it into a stack to stand during the winter. Two men are busy by the machine taking away the golden grain, and in the left foreground stand the three conscious figures in the scene—three generations of farmers' wives out to have their pictures 'took.' In the old style photography every person in the scene would stop his work and gaze, open-mouthed, into the eye of the camera. That is what the old agriculturalist on the horse-power is doing, 'tis true, but he has his whip up, and one can almost hear his monotonous 'Git up there now! G'lang! Hi, Bill! Cluck! Cluck! Git up! 'Long there, now!'"

He further says of Mr. Orr what we cordially endorse:

"Mr. Orr is certainly one of the most promising practitioners of that fascinating art in the West. Next summer he will be equipped with a camera to be operated precisely like a gun. Having taken careful aim or focus over a sight, he will pull a trigger, and there's your picture!"

One more person to be congratulated for this success is Mr. G. Cramer, of St. Louis, whose excellent plates are used by Mr. Orr, Mr. Orr wrote Mr. Cramer, some time ago, as follows:

"I was working the I. C. plates, but had occasion to try yours, and found them very superior, both for instantaneous viewing and studio work. Each one I use adds new pleasure and delight. I can always depend on them. They seem to come up fully timed with my new instantaneous shutter, which is said to be the quickest yet made—I can say nothing but praise of them.

"C. E. ORR."

The prints were made for us by the Photogravure Company, of New York, by the gelatine process. They are very superior. We trust the whole combination will prove a useful lesson to our readers.

### THREE HUNDRED MAGAZINES TO ONE MAN.

DELVING among our archives a short time ago, we found our first subscription book—just as we had completed what are equivalent to 25 volumes—300 numbers of our magazine.

Many pleasant and many sad recollections are called up by this small book. Sad, because many whose names are there are no more. Pleasant, because a number whose names are there still live, and still remain through all these years subscribers to our magazine. Among them are the following:

- E. & H. T. Anthony & Co., New York.
- G. R. Angell, Detroit, Mich.
- J. W. Black, Boston.
- C. Bierstadt, Niagara Falls.
- E. Bierstadt, New York.
- S. Fisher Corlies, Philadelphia.

- A. M. Collins, Philadelphia.
- F. B. Clench, then Lockport, N. Y.
- J. D. Dunn, Meadville, Pa.
- B. L. H. Dabbs, Pittsburg, Pa.
- G. A. Douglas, then Buffalo, N. Y.
- B. French & Co., Boston.
- F. Graff, Philadelphia.
- F. Gutekunst, Philadelphia.
- John G. Hood, Philadelphia.
- R. (now F. the son) Knecht, Easton, Pa.
- J. F. Magee & Co., Philadelphia.
- Wistar Morris, Philadelphia.
- A. McCormick, Oxford, Pa.
- Photographic Society of Philadelphia.
- J. F. Ryder, Cleveland, Ohio.
- E. D. Ritton, Danbury, Conn.
- Sidney S. Rider & Bro., Providence, R. I.
- Scovill Manufacturing Co., New York.
- L. W. Thornton, then St. Johns, Mich.
- U. S. Patent Office, Washington.
- U. S. Coast Survey, Washington.
- G. W. Weiser, Steubenville, O.
- B. W. Kilburn, Littleton, N. H.

Many other galleries have continued to receive the PHILADELPHIA PHOTOGRAPHER from its first issue, but their proprietors have changed, and some are supplied through the dealers—an article that was rare when we started.

We hardly dare hope to work together for another quarter century, but as long as we can, we mean to uphold the fair fame of the camera, its votaries, and THE PHILADELPHIA PHOTOGRAPHER.

### THE WORLD'S PHOTOGRAPHY FOCUSSED.

LECTURE ON THE COLORS OF SOLAR LIGHT.—At the London Royal Institute, Captain Abney has just delivered a lecture *on the colors of solar light*. We know that the lessons given at the London Institute are of a popular character, in which the professor explains to his audience the most recent scientific discoveries, by means of interesting experiments and in plain language. The subject chosen on this occasion by Captain Abney is vast and embraces a large part of optics. He especially endeavored to explain, by modern theories, the reason for the different direct or complementary colors which bodies take at the

surface of the earth, when lighted by the solar rays under varied conditions. Total or partial lighting, the influence of white or colored vapors, that phenomena of contrasts, the prismatic decomposition of the rays, etc., all this furnished the elements of an animated discourse which lasted for more than two hours. We know that the great poet Goethe had a theory of colors to which he greatly held, and since his time many scientists have also advanced their favorite theories on this complicated subject. Captain Abney and his friend General Festing have also theoretical ideas on the absorption of light by colored mediums, and in trying to explain them the author entered into considerations which doubtless greatly exercised the patience of his audience.—DR. PHIPSON in *Paris Moniteur*.

A REMEDY AGAINST HALATION.—To arrive at a more practical subject, let us say that Mr. T. Bolas, editor in chief of the *Photographic News*, thinks that he has discovered an efficacious remedy against halation. For some time already he had conceived the idea of preventing this pernicious effect by staining the sensitive film by means of some vegetable color. This he has just done by using saffron for the yellow color and campeachy for the red color. Each of these coloring matters possesses the same property of arresting the transmission of the rays which produce the effect known as halation, but they have a different action on the sensitiveness of the film; moreover, neither the one nor the other possesses isochromatic properties.—*Dr. Phipson*.

ABOUT AMMONIACAL FUMING.—It is known that in the United States photographers have the habit of submitting to ammoniacal fuming a sensitized positive paper before using it. The cause of this practice is attributed to the dryness of the atmosphere and high temperature in summer in the United States, and this is the way that our photographic authors explain it. It appears, however, after numerous experiments made in England, that ammoniacal fuming is not at all necessary with us, and this remark doubtless applies to all the north of Europe.

This is what probably gave rise to this

process: We know that in order to preserve sensitized paper, a certain quantity of citric acid is added to the silver bath, and on a number of occasions it was found that paper thus preserved was difficult to print on. From this came the idea of neutralizing the citric acid by means of ammoniacal fuming before printing. It may be possible that some manufacturers use a little too much citric acid in the hopes of making their paper last longer; in this case, perhaps, ammoniacal fuming might be useful.—*Paris Moniteur*.

At the American Exhibition in London (the "Yankeries"), among the photographers who exhibit are Messrs. Vanderweyde, W. H. Jackson & Co., Geo. Barker, M. C. Morris, G. B. Wood, R. Newell & Son, Kilburn Bros., and Fred. A. Jackson.

THE *Century* magazine for May should be read by every photographer. Not only will the leading article on "Flowers," by John Burroughs, induce more care in photographing flowers, but the article by Talcott Williams, the literary editor of the Philadelphia daily *Press*, on Mr. Muybridge's photographs, will open the eyes of many as to the possibilities and probabilities of our art. See also page 444 of our current issue.

CENTRIFUGAL APPARATUS.—At the London Photographic Association, Mr. L. Henderson exhibited an improved centrifugal apparatus by means of which he cleans the bromized emulsion. This species of turbine make 3600 revolutions per minute.

TONING WITH CHLORINE WATER.—At the Edinburgh Photographic Society, M. Jamieson, described a process for toning with chloride. The print is partially whitened in chlorine water, washed, and then exposed to the light of day, until the chloride of silver is reduced, so as to give the desired warm tint.

THE German Exhibition takes place at Stuttgart in August. The Society gold medal and the two offers of Herr Voigtländer, the optician (200 and 300 marks), are the only prizes to be competed for.

**OUTDOOR OPERATIONS.**

THE above caption is given to Chapter X. of *Quarter Century in Photography*, written with the hope of inducing those who are

privileged to focus upon scenes outside the studio, to put more art into their work, followed by some hints framed to lead the camera lover in the proper direction.

With the same object in view we have



"June," by WILLIAM C. FITTER.



"In the Heart of Holland," by KRUSEMAN VAN ELTEN.

contrived to make our current number, both by means of the embellishment and the text, largely a mid-summer outdoor number.

Through the courtesy of Mr. Thomas E. Kirby, of the American Art Association of New York, we are able to supplement the other efforts alluded to, by presenting engravings of several of the best modern American landscape paintings for the study of our readers.

The first, "June," by Mr. William C. Fitter, is just such a study as may be found upon any of our lovely American wooded streams, and is offered as an example of composition. Not a sign of humanity is here to break the sense of nature's exclusiveness and silence which pervades. But if all this be too tame, the next study, "In the Heart of Holland," by Mr. Kruseman Van Elten, will be found to give more variety, simply by the suggestiveness of the simple accessories of man, boat, and house. Here are the elements of a lovely outdoor picture, without any overdoing in any respect. These for the wanderers among the mountains and hills. Those who seek the wide sound or the coast flats, will find such subjects as "Left by the Tide," by Mr. Edward Gay, more plentiful and well worthy of their plates.

We offer them simply as suggestions, and in our next issue propose to follow them with several marine studies.

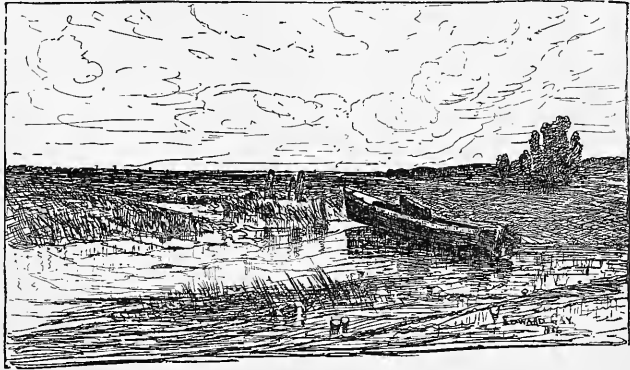
These do not appear in *Quarter Century*, but others do, in plenty, and to fully understand all a reading of that work will be found helpful.

What follows is apropos here, and is from Chapter X., *Quarter Century*:

In a river view strive to get a good mass on either one side or the other of the subject, and do not let it extend far enough into the picture to cut off too much of the distance, if the latter is good. If there should be so much of interest in a side group that you must extend it very far across the plate,

make it the subject, sacrificing the rest. When you have a fine side group of trees with a good profile, an agreeable combination of curves, straight passages, and angles, for instance, do not cut the top off it, but let some sky appear above, by retiring further; or if this is not practicable, using a wider angle lens. In other instances, where there is a high blank wall of uninteresting or monotonous foliage, with a very interesting passage of stems underneath, then advance close, cut off much of the top, and aim for one of those pretty compositions in which a passage of distance is seen beneath overhanging or overspreading boughs. The deep quiet passages of shadow cast upon the earth under spreading trees give breadth and effect to a subject, and when it happens that a stump, or rock, or cow, or some such object can be relieved in high light, by being a little nearer and cutting against such mass of shadow the effect is greatly heightened.

A considerable amount of atmosphere



"Left by the Tide," by EDWARD GAY.

will be found of advantage in extended river scenes, as it separates different passages, causing the more distant to recede, thereby adding to the look of perspective or retiring of the distance; and, moreover, it gives mystery, which is an agreeable quality in art. It is of great advantage to have calm, or very nearly calm, water, the reflecting of passages of deep shadow preventing too sharp cutting of shore lines, and also removing the difficulty of the whole water in the picture being a cut-out light

patch of equal brightness all over. It is a fortunate time if water can be got perfectly calm under hills or rocky bluffs, with their deep, quiet reflections underneath, and streaked by puffs of air, causing strips of bright light, making it appear more level. Boats or skiffs are a great improvement in water scenes if they happen to be in a fortunate position. In the middle distance they measure the size of the scene, by comparison, and as foreground features, with their deep touches of shadow form good points of interest, but will always be preferable if not full side view or directly end on.

The figures herewith may well be used to fit these quotations in lieu of those which actually illustrate them in *Quarter Century*, pages 185 and 186.

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### PHOTOGRAPHY IN NATURAL COLORS.

ATTENTION is now being called to two things, namely the Exhibition of Chemical Products at Manchester, and the production of photographs in natural colors. This last subject interests us the most, and we received something like a slight electric shock when we recently read in the *Times* that Messrs. Mayall had discovered a mechanical process by means of which it will be possible to produce, hereafter, prints in natural colors, without being obliged to call in the skill of the artist. After some steps we discovered that the process in question is not precisely new, the colors are not applied by the sun, but by the hand of a person, artist or not, this matters little. Messrs. Mayall have doubtless succeeded in producing some very pretty things; some of their colored portraits have been compared to carbon prints which are colored on the back, that is to say, while they are still adherent to their glass support, the film afterward to be carried to another support.

So much for the practical part concerning the reproduction of natural colors in photography. We now have to note, besides, in regard to the theory that Mr Carey Lea, of Philadelphia, has published last month a paper on the latent image, in which Mr. Lea asserts that the chloride (iodide and

bromide) of silver is capable of combining with the bichloride (bi-iodide, bi-bromide) produced by the reducing action of light, or, by the reducing action of the different known reagents. This compound of chloride and bichloride resists the action of concentrated nitric acid, and may be obtained of *divers colors*, and in darkness in rather a permanent form. He calls these compounds *photochloride*, *photoiodide*, *photobromide* of silver. There is in the communication of Mr. Carey Lea a singular contradiction. It appears that it is the *photochloride*, that is to say a compound of chloride and of bichloride which forms the latent image; it may be produced artificially by precipitation, etc., and it is then stable except when exposed to the light. The artificial product is, therefore, stable in regard to the reagents but not as regards the light. Now, the latent image is not stable in regard to reagents, otherwise development would be impossible. The red or pink color seems to be the normal color of the photochloride of the author, but the composition varies as do also the shades, analyses having given from  $2\frac{1}{2}$  to  $8\frac{1}{2}$  for 100 of argentic bichloride, the rest being normal chloride. The photochloride of silver placed in the spectrum or under colored glasses, becomes violet in violet light, slate-blue under the blue; in red light it does not change, and in green or yellow light it is whitened. Since three years the above author has made, in this direction, a number of experiments and he promises us a second part to his paper.—*Camera*.

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[Translated for the Philadelphia Photographer.]

### MICROSCOPIC PHOTOGRAPHY.

BY M. DAGRON.

#### MANIPULATION AND MANNER OF OPERATING.

THE plates measure 7 x 3 inches, and when sensitized are cut into strips of seven-eighths of an inch. In this manner nine strips are obtained from one plate all ready to be successively placed in the camera. We find here, together with great economy of time, more facility for the cleaning and preparation.



## CLEANING THE PLATE.

Never use other than levigated chalk; it has the double advantage of being very cheap and of never scratching the plate. We use it as follows:

Water . . .	34 fl. ounces.
Levigated Chalk . . .	10 drachms.
Alcohol at 40° . . .	6 fl. ozs. 6 drachms.

Mix well. This mixture may be used immediately. Allow a few drops to fall on the plate and spread with a tuft of cotton; repeat the operation on the second surface. When the two surfaces have been well rubbed and cleaned, they are first wiped with another tuft of dry cotton, then with fine chamois. In working with wet collodion this first cleaning might perhaps be sufficient, but the ulterior use of albumen requires greater precaution. It is well, therefore, to make this second cleaning, but only on the surface, which is to receive the sensitive film. For this last operation it is well to use a little of the collodion which remains in the bottles.

## PREPARATION OF THE ALBUMEN.

Whites of six Eggs, say Albumen . . . . .	5 fl. ozs.
Distilled Water . . . . .	4 fl. drachms.
Eight grains Iodide Potassium for each White of Egg, say . . . . .	48 grains.
Liquid Ammonia . . . . .	A few drops.
White Sugar . . . . .	31 grains.
Iodine . . . . .	A small scale.

Beat the whole together either with a wooden fork or a little whisk for about ten minutes, or until the froth is sufficiently firm for the fork to stand up in it. Allow the albumen to rest for about twelve hours, and, as it has passed through its own froth, it will be very good and ready for use.

*Remark*—In breaking the eggs, care must be taken to separate the whites from the yolks and the germs, so as to have in the dish the whites entirely pure.

When a large quantity of albumen is to be prepared, it is better to first break the white into a tumbler and then pour it into the dish. In this manner, if in breaking the eggs any portion of the yolks or the germs should be found with the white, and

which it is not possible to remove, only the white in the tumbler would be lost.

## APPLICATION OF THE COLLODION AND THE ALBUMEN TO THE PLATE.

The plate should be well cleaned, and as a precaution a soft brush should be passed over the surface which is to receive the collodion. The plate thus collodionized, is sensitized in a bath of seven or eight per cent. of nitrate of silver; an immersion of from twelve to fifteen seconds is sufficient for the requisite sensitizing.

On coming from the bath the plate should be well washed, either in a dish or under the tap, with distilled water, so as to rid it of the free silver salt. It is then allowed to drain during the time necessary for the collodionizing, sensitizing, and washing of another plate. When the plate is sufficiently drained, and whilst still wet, the albumen is spread over its surface, on the collodion, and in the same manner. It is well to have near by a bottle with a funnel and its filter to receive the excess of albumen.

The plate being thus prepared and dried is again sensitized, but this time in a bath containing ten per cent. of nitrate of silver and ten per cent. of acetic acid. Fifteen seconds in the bath are sufficient. On coming from this second bath the plate is again carefully washed under a jet of filtered water and then one of distilled water.

The plate is placed in the drainer and when dry is ready to be used. Unless operated upon at once, it should be placed in a grooved box protected from the light, in which it preserves all its qualities, not only for several months, but even for one or two years. We call attention to the fact that the second sensitizing bath should often be restored and filtered, because the acetic acid which it contains causes it to blacken and at the same time to become turbid. Here is the process that I use to restore its original limpidity: I add 25 parts of kaolin to 100 parts of the bath; I agitate, and then filter. It is impossible that the kaolin should not weaken a little the bath. It is, therefore, necessary to have recourse to the hydrometer, and to add the nitrate and acetic acid to make up for what has been lost. The exposure varies

according to the weather. In bright light one second is sufficient; in bad weather it is sometimes necessary to expose for fifty to sixty seconds. As on the same strip of glass there are eight prints, when we wish to make sure, these eight prints should be made at different series of exposures, so as to give the succeeding slips the necessary time.

#### DEVELOPMENT OF THE IMAGE.

To develop all the necessary sharpness, it is especially necessary to produce the image slowly. The developing bath is composed as follows:

Water . . . . .	34 fl. ozs.
Gallic Acid . . . . .	46 grains.
Pyrogallie Acid . . . . .	15 "
Alcohol . . . . .	6 drachms.

If but few prints are to be developed, pour into the dish about a quarter of the preceding solution, in which plunge the strips coming from the camera; after from ten to twenty seconds, add to the solution a few drops—at least three or four—of a two per cent. solution of nitrate of silver, to assist the developing of the image, which is not slow in showing itself. After the apparition remove the strip from the solution and examine it with a magnifying glass. If the blacks and the whites are sufficiently intense, if the images are sharp and intense, the strip is not returned to the developing bath. In the contrary case it is replaced in it. In this way it is possible to follow with a magnifying glass each strip and each image until they are all perfectly developed. When this point is reached they are plunged into another dish of filtered water, thoroughly washed and fixed.

#### FIXING THE PRINT.

The fixing bath is formed of filtered water 34 fluidounces and hyposulphate of soda 3 drachms 6 ounces Troy. The proportion of 20 for 100 of hyposulphite is that which I have adopted. But in the fixing, as well as in the development, the image should be carefully watched. It is generally fixed in from ten to fifteen seconds. Looking at it by transparency—that is to say, holding it between the eye and the light—the contin-

uous deodorizing of the silver may be followed without much difficulty. The image should then be well washed in a dish of filtered water. After this last operation the photographic work is entirely ended, and nothing remains but to place the strips under the large microscopes to see what has been done.—*Paris Moniteur.*

#### PERTAINING TO THE



THE BLAIR CUP.

*To the Executive Board of The Photographers' Association of America, G. Cramer, President.*

DEAR SIR: In compliance with your letter bearing date of May 27th, in which you suggest that I put the offer of the Prize Cup into proper shape for action at the coming convention, I beg to say that as several correspondents have suggested that the cup remain the property of the successful competitor, I have, after considerable thought on the question, decided to leave the final disposition of the cup entirely in the hands of the Photographers' Association of America, and would name only the following rules to be observed:

1st. The cup shall be competed for at, at least, three different exhibitions, at intervals to be named by a vote of the Association.

2d. No contributor shall be allowed to place conspicuously on his exhibit, the name of any of the apparatus or materials used in making the pictures.

3d. No pictures having been previously entered for competition shall compete for the prize cup.

The class or classes which shall be allowed to compete, shall be decided by a committee

appointed by a vote of the Photographers' Association of America.

In conclusion, I wish to add that it has been my aim to make the competition one solely for honor, and with the mercenary motive so buried that it will require digging to discover, to accomplish this end. I am willing to modify these rules to any extent if made clear to me that the modification will assist in this purpose.

I cannot help feeling that photography is drifting deeper and deeper into the commercial channel so common to the present age, and which will more than anything else I know of, help to make it a commercial business; this being so, the beautiful productions of which it is parent stand as nothing toward increasing their value as works of art. The appreciative public is now ready for a reaction; a few firm and earnest workers whose direct gain is not the motive, would add much toward the cause.

Fraternally yours,

T. H. BLAIR.

THE following was received too late to change Mr. Bellsmith's communication in our last number:

St. Louis, June 29, 1887.

DEAR SIR: I have telegraphed you today to withhold notice to parties offering private prizes, etc., which was adopted by the Executive Committee, and sent to you by our Secretary, Mr. H. S. Bellsmith, as I proposed a change in the following sentence:

"Pictures competing for private prizes must be displayed in the Stockdealers' Department to which above rules do not apply."

My motion is to leave out this passage and put the following in its place:

"Exhibits conflicting with this rule may be displayed in the Stockdealers' Department, to which above rules do not apply."

My idea is, that no picture shall be ruled out of the art halls, even if competing for the private prizes, as long as they have no inscriptions, cards, or marks conflicting with the adopted rules, and I have written to the members of the Executive Committee and expect their answer by telegraph. As soon as the matter is decided, I will tele-

graph you. Change in rule stands adopted, and you may then go ahead and publish it with the change stated herein.

Yours very truly, G. CRAMER.

[See further below.—ED. P. P.]

#### RULES CONCERNING EXHIBITS AND COMPETITION FOR PRIZES.

The rules adopted for exhibits of photographs in the Art Hall, and competition for Association or private prizes, have been modified to stand as follows:

All exhibits competing for Association prizes must be without frames or glass. Pictures may be fastened to boards covered with cloth or paper; and a neat moulding, not exceeding one inch in width, may be put around the edge of board to give a finish.

No signs of any description shall be allowed to be placed in the halls devoted to the display of photographs, except one card to every exhibit, said card not to exceed 7 x 12 inches in size, and to contain only the name and address of photographer whose work is represented. This shall not prevent the use of card mounts, with the photographer's address, and any picture may have its title or subject neatly inscribed thereon, but nothing of an advertising nature will be permitted.

No pictures will be allowed in the Art Hall that have any marks indicating what plates, lenses, paper, etc., were used.

Exhibits conflicting with this rule may be displayed in the Stockdealers' Department, to which the above rules do not apply.

THE EXECUTIVE COMMITTEE.

#### IMPORTANT NOTICE.

*To the Photographic Fraternity.*

To avoid misunderstanding of the adopted rule that exhibits competing for the Association prizes at the coming Chicago Convention must be without frames or glass, it is hereby announced that pictures may be fastened on boards, covered with cloth or paper, and that a neat moulding not exceeding one inch in width may be put around the edge of the board to give it a finish.

In regard to the rule preventing anything of an advertising nature in the halls devoted

to the display of photographs and allowing only one card, not more than seven by twelve inches in size, to every exhibit, with only the name and address of photographer, whose work is represented, this shall not prevent the use of card mounts bearing the photographer's name and address.

THE EXECUTIVE COMMITTEE.

TREASURER CARLISLE called upon us recently and said: "I have completed arrangements with the General Manager of the Central Passenger Association for certificates granting return fare from our Chicago Convention at one-third rates. The certificates for Eastern members may be had by addressing the Treasurer. With such certificate will be sent a list of railroads whose ticket agents will sign said certificate. East of New York the Fitchburg is the only road that comes into the arrangement. Therefore many Eastern members will find it to their advantage to pay local fare to New York and buy their tickets here. New York City people, or those who may be in New York, can get any decided information from Milton C. Roach, 413 Broadway, N. Y.

NOTICE.

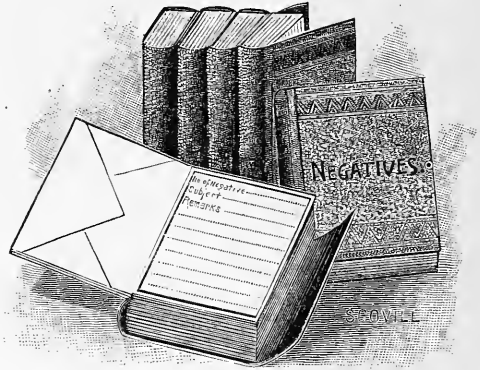
The Air Brush Manufacturing Co. has increased its offer of prizes at the Chicago Convention, and will give with each Air Brush one of its convenient and handsome black walnut easels. This affords a perfect instrument with easel for the best black and white picture finished with the Air Brush, and the same for the best colored picture so finished.

THE HOWARD NEGATIVE PRESERVER AND BINDER.

AFTER the printing, every systematic photographer will take great pains to store and register his negatives. The cut below represents a useful article for this purpose, and is known as the Howard Negative Preserver and Binder. It is very convenient. It consists of heavy, finely surfaced envelopes (negative preservers), secured in cloth covers, and printed for reference, as shown in cut, and are designed for the preservation and classification of either paper or glass

negatives, or mounted or unmounted photographs.

It occupies much less space than negative boxes. By means of the patent adjustable back, the file enlarges as the envelopes are



filled, and when full presents the appearance of a handsome volume suitable for the library.

The Binders are all made with front flap and tie. They are made by the Scovill Manufacturing Co., New York, and are bound to become very popular.

HONORABLE TESTIMONY.

WHEN we see a magazine famed, world-wide for its artistic excellencies stop in its triumphant march into the hearts and homes of the world to pay a tribute such as follows, to our art, we may well take courage and look up again. Our watchers, who heartily take comfort in every step of progress our art has made from its first move to its present rapid travellings, will rejoice in this generous testimonial to the value of photography as a helper to Art. In the language of Stanley's African Queen, "What did we tell you?"

"There is a great deal that is worth watching in American Art at the present time; and one of these things is the effect of photography upon art—not merely the effect of the Muybridge revelations, which though of great value may easily be overdone as assistants to the artist; not merely the general and undoubted effect of all photography from nature—an effect extended and made more intimate by the spread of amateur

photography; not merely the general diffusion of art instruction and influence by means of photographic copies of the old masters, etc.; not merely the great and important use of photography in wood-engraving, but also the growing use of photography in various reproductive methods, and the effect of their use upon illustration in particular, and upon current art in general.

“The success of Elihu Vedder’s ‘Omar Khayyâm,’ and of William H. Low’s ‘Lamia’ in previous years, was the occasion of such volumes in the last season as the ‘Book of American Figure Painters,’ and Kenyon Cox’s ‘Blessed Damozel’;—possibly such success may also have had something to do with the book form in which Edwin Abbey’s illustrations of ‘She Stoops to Conquer’ were brought out. These photographic processes have, therefore, become a strong factor in American art development, and have given the opportunity to publishers to employ our better artists upon continuous series of congenial subjects; as well as to present to the public good-sized reproductions of unrelated original designs, either made for the purpose or already completed, as in the ‘Book of American Figure Painters.’ This volume, though its pictures are not of uniform merit, deserves the attention of the connoisseur. Kenyon Cox has not yet surpassed his ‘Evening’ in this collection. Here, too, are Dewing’s exquisite ‘Days,’ Winslow Homer’s ‘Lost on the Grand Banks,’ and Bunker’s ‘Dozing Tar,’—with examples of La Farge, Wyatt Eaton, Vedder, Julian, Weir, Eastman Johnson, Volk, Dielman, Shirlaw, Millet, Chase and other painters of ability. A better collection is easily imaginable—but single pictures in this gallery are worth the cost of the whole sumptuous volume. The ‘Blessed Damozel’ of Cox, it is natural for each critic to assume, is not the ‘Blessed Damozel’ of the poet; and we find moreover, in this series, that tendency to stick too closely to the model, which is the artist’s danger; but we find also a keen and unusual decorative and pictorial sense, as well as undoubted evidences of imagination. Mr. Abbey is indebted to the actinic, and other processes in which photography comes

into play, in the preparation of his illustrations for ‘She Stoops to Conquer,’ a work as near perfection in its illustrative and artistic qualities in its own line as contemporaneous art can show. The delightfully illustrated ‘Book of the Tile Club’ also owes much of its attractiveness to the photographic processes. If we were not speaking especially of the photographic side of the subject, we should like to enlarge upon the art qualities displayed in the covers of all the four books here mentioned; but instead will call attention to the extremely successful use of the photogravure in the new American ‘Art Review,’ whose bound volumes are an invaluable storehouse of current American art.”—*Century*.

### PRINTING PERPLEXITIES.

(Continued from page 415.)

CHROME alum in silver solution allows a much weaker solution of silver, equalling one in which almost twice the amount has been used to produce the same result, viz., brilliancy and the absence of softening of albumen on paper silvered on weak solutions of silver at low temperature. But as it gains here it also increases the tendency to blister; but this can be avoided by the use of ammonia in the hypo, and also in the salt bath after the hypo; also by not taking the prints out of the salt bath, but letting the water into the salt bath gradually. Paper (silvered on this solution) one day old becomes very difficult to tone, unless a very large amount of alkali is used in the toning bath, the action of the alkali being to soften the now insoluble albumen and allow its being toned. I add the formula that has worked well with the “brilliant” albumen papers in the market:

Nitrate of Silver . . . . .	437½ grains.
Water . . . . .	12 ounces.
Nitric Acid . . . . .	3 drops.
Chrome Alum . . . . .	5 grains.

After silvering twelve sheets upon this add the same amount of silver solution composed as given. By experience it has been found that one ounce of silver will sensitize one dozen sheets of paper. By doing this

good prints are always obtained, and poor ones when it is neglected. Chrome alum added to an alkaline silver solution will be precipitated. Its good effects are to be had only from an acid silver solution.—WM. BELL.

THE time of floating determines the delicacy of the print, and the strength of the silver the strength of the print.

I have found more prints ruined by floating too long, than by any other error. Paper floated too long absorbs too much silver; decomposes more quickly; gives less definition in the shadows; injures, and frequently flattens the appearance of the print. Too short a time produces weak and mottled prints, incapable of receiving a tone.

I have always worked my silver perfectly neutral and perfectly plain, using it in summer at 20 grains, in cold weather from 30 to 40 grains; floating both plain and albumen paper 45 seconds; fuming 10 minutes.

Whenever in warm weather my silver solution decomposes, I add a few drops of a strong solution of permanganate of potash, but this will fail to act if the solution has albumen or gelatine in it.

Paper should be perfectly dry before fuming, and if damp after fuming, be dried before printing.—W. L. SHOEMAKER.

PRINTS made on strongly silvered paper have, undoubtedly, a better prospect of permanence than those on weak. A great element of permanence lies in the reduced gold extracted by the print from the toning-bath, and the quantity of this is exactly proportionate, other things being equal, to the quantity of metallic silver reduced in the operation of printing. It is the metallic silver only, that has the power to substitute itself for the gold in the toning-bath, and it can scarcely admit of a doubt that most silver is reduced in printing when the supply of nitrate is most abundant. This better prospect of permanence, is a powerful argument in favor of the strong printing-bath.—M. CAREY LEA.

THE use of phosphate of soda in the positive bath yields a print perfectly free from all tendency to turn blue-black in the toning bath. The shadows and half shadows of

the print, when removed from the printing-frame, have a yellowish sepia tone, which passes, in the gold bath, to a warm brown sepia.

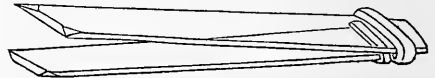
Another peculiarity is that the paper is more sensitive. Thick negatives give softer prints on such paper, with better half-tones, and print quicker. My printing-bath is made as follows:

1 oz. of Nitrate of Silver in 10 ozs. of Water.  
1 " Nitrate of Soda " " "

Add these solutions, and to them a drachm of ether, and to four grains of phosphate of soda dissolved in a little water. On this solution the paper floats four to six minutes.

By increasing or diminishing the proportion of phosphate, different tones are obtained.—M. WILDE.

GLASS forceps will be found useful during the operations of silver printing. They are quite efficient, and have the advantage over whalebone of being easy to clean. They can be easily and cheaply constructed, as follows: take two equal strips of ordinary sheet-glass; these may be four inches long and half an inch broad. The sharp edges must first be taken off, then place them together and crowd a piece of rubber-tube, about half an inch long, over the two at one



end. Next slide a shorter piece of tube down the length of one of the pieces of glass, until it reaches the first piece of rubber. The second rubber band serves to keep the two blades separate, while the elasticity of the first makes resistance as the blades are pressed together by the hand in grasping an object. When this pressure is removed they will separate half an inch at the end. It is best to bring the lower ends of the glass strips to an edge, or to bevel off the corners on a grindstone, so that they will readily slide under a sheet of paper which lies on the bottom of a dish. Broad blades are advantageous when lifting large sheets of paper liable to tear. A pair, one inch by seven, were found quite convenient.—JOHN M. BLAKE.

## Editor's Table.

PICTURES RECEIVED.—“The New South”—a young negro, barefooted, with snapping eyes and shining teeth, mounted on a velocipede—is very life-like and funny. It comes to us from Mr. E. E. BROWN, Asheville, N. C., accompanied by an inviting view of the Battery Park Hotel of that place. Both are excellent photographs. Messrs. ROSE & Co. are among the rising photographers of Denver, Col., as some splendid cabinets from them prove. Their pictures are judiciously posed and lighted, and the technique is admirable. “Clio” is very well done, but their juveniles are as near to childhood as the camera can focus. Mr. J. HARDY, Pomona, Cal., is very happy in his choice of subject for character pictures, and both juniors and seniors are splendidly composed and taken. He has had the sympathy of his models, which is a great help. We like to see such ambitious work done well. Mr. J. NICOL, Monmouth, Ill., favors us with an interesting picture of a night blooming cereus, taken at night by oil lamp light; time of exposure one minute, with No. 35 brand CRAMER plate. It is capital. Some pictures taken during and after the burning of the great mills at Lawrence, Mass., come from Mr. C. A. LAWRENCE, of that city of inlets and millions. They are very interesting indeed.

A CYCLONE TAKEN.—Although we called down the sharp man of the *Detroit Free Press* upon our devoted head for the suggestion that some of our patrons endeavor to secure negatives of a cyclone “in the very act,” it has been followed by one of our believing patrons, and with splendid success. Mr. C. L. JUDD, of Jamestown, Dakota, is the enterprising man who did it well. A few days after the suggestion in the PHILADELPHIA PHOTOGRAPHER, the Jamestown sky suddenly darkened. The clouds hung over the town like a pall. Mr. JUDD, from his studio window, saw a great, crooked, gyrating, black, trumpet-topped column, reaching from earth to clouds, tearing through space. It was a cyclone. He caught two negatives of it. One of his pictures will appear as an extra in the August issue of the *Scribner's* magazine, in company with an article by Prof. SHALER on cyclones and their effects, illustrated by autographs from photographs gathered by us from our subscribers. Thus Mr. JUDD and others will be known all over the world for their enter-

prise and as careful readers of the PHILADELPHIA PHOTOGRAPHER.

MORE photographs of cyclones and their effects are wanted.

FROM MESSRS. A. M. COLLINS, SON & Co., Philadelphia, we have the finest effects we have yet seen in printing on photograph cards. Instead of being printed from block type or stone, the gold-leaf designs are stamped upon the card, and sunk in like the title on the cover of a book. The letters are thus as highly polished as the hieroglyphics on an Egyptian obelisk, and the effect upon the fine colored cards is simply lovely. We are sure this new style will be appreciated.

A NEW catalogue has been issued by Messrs. W. H. WALMSLEY & Co., 1016 Chestnut Street, Philadelphia, splendidly illustrated, 104 pages. It contains a number of novelties, including a description of the new BECK lens, with “Iris” diaphragm, and a long, attractive “bargain list.”

*The Theatre*, a bright magazine, devoted to the dramatic and other arts, has for the frontispiece of its June issue a full page reproduction from Mr. H. McMICHAEL'S splendid negative of Genevieve Lytton.

MR. CHAS. ALDRICH pays a fitting and lovely testimonial in the *Critic* of June 24 to Prof. F. V. HAYDEN, the explorer. When Prof. HAYDEN came to us many years ago, to see if we knew a young photographer who cared more for fame than for funds—more for adventure than tomahawks—we gave him a letter of introduction to a rosy cheeked youth who was then located at Omaha, Neb. They met, they joined the camera and the geological hammer, and for years explored together. The poor Professor is now hopelessly ill, but the photographer continues hard at work, and is one of the most famous artists in the world. We refer to WM. H. JACKSON, of Denver, Colorado. Long may he live!

HOW AN ORDER CAME FROM INDIA.—It came to SWEET, WALLACH & Co., Chicago, and was from a subscriber to the PHILADELPHIA PHOTOGRAPHER who resides in Singapore. All of our advertisers find our magazine useful, and continue to employ its pages for help.

FIRE!!!—Just as we were going to press we learned of the entire loss by fire of the famous and long established photographic supply house of Messrs. E. & H. T. ANTHONY & Co., 591 Broadway, N. Y. The fire originated among some chemicals stored in the rear of the third floor. The loss to the firm will reach nearly \$100,000.

SEA GULLS ON THE FLY.—Some time ago we noticed the remarkable picture of a great flock of sea gulls caught in the air by Mr. C. A. MALLIN, of Manchester, England. Here are gulls on the fly, on the half fly, pitching, soaring, swirling in the air in abundance. A few friends wanted prints, and we imported them. A few copies over may be had. See special notice.

ALBERT A. LINE, Esq., conducts the Summer School of Photography at Mountain Lake Park, Md., this season, from August 1 to August 13.

MESSRS. BUCHANAN, BROMLEY & Co., 1030 Arch St., Philadelphia, importers of the famed "Three Kings" albumen paper, send an envelope full of circulars. Get a set, especially the "bargain" list and catalogue of accessories.

MR. G. CRAMER maintains that his plates, above all other excellent qualities, are noted for that peculiar softness and fine detail in the shadows which the artistic photographer tries so hard to get.

MR. A. B. STEBBINS, Canisteo, N. Y., receives some highly flattering praise from the local newspaper of Canisteo. And his work merits it.

"I CONSIDER your journal very valuable," writes Mr. H. F. HEATH, of Bradford, Ohio.

MONS. NADAR, of Paris, has favored us with a large series of his excellent views of the ruins of the Opera Comique, at the burning of which some eighty lives were lost. They depict the horrors of the dreadful scene with terrible realism, and are excellent examples of work. They were made on Eastman films.

THE BROOKLYN PHOTO ENLARGING AND CONTACT PRINTING COMPANY, 504 Third St., Brooklyn, N. Y., makes enlarged or contact prints upon bromide paper from negatives of every description, and finishes the same in any desired style for photographers and the trade. With the latest and most improved apparatus, and long practical experience in the work, the best possible results from all negatives are promised. Mr. A. A. KNOX, the well known artist, is the able manager.

Go to the Convention.

BUY *Quarter Century* now.

SCOVILL MANUFACTURING COMPANY'S Catalogue for June is a magnificent volume of 240 pages almost as large as this magazine—splendidly illustrated. The new cover is tasteful and beautiful. The prices should be consulted. A special 20 page catalogue of lenses has also just been issued by Scovill Manufacturing Co.

MR. ERNEST EDWARDS, President of the PHOTOGRAPHURE Co., read a paper on "The Art of Making Photogravures," before the Photographic Section of the American Institute recently, and illustrated it with some charming lantern slides. We have excerpts of the lecture as reported in the *Photographic Times*, together with several lovely prints from "the Land of Sleepy Hollow"—photogravure prints. An added copy of the *Times* makes the whole a fine souvenir of an interesting occasion.

ON June 21 the *Amateur Photographer* issued its "Royal Jubilee Number," with autoglyphs of twenty-four pictures taken by amateur photographers. As studies these pictures are very useful. Our friend, Mr. J. WERGE, in the same number proves his claim as historian by an interesting paper entitled "Fifty Years' Development of Photography." Mr. WERGE was once a resident of this country, and therefore is able to note the "development" on both sides of the world's plate. We may presently reprint his paper.

MESSRS. WILSON, HOOD & Co., Philadelphia, write us that they will exhibit at Chicago, in charge of E. R. KENNINGTON, a large line of Osborne accessories, Osborne backgrounds, felt backgrounds, felt rugs, draperies, curtains, etc. They are very beautiful tools to work with.

MR. and MRS. G. H. FOWLER have sent us a batch of cabinets, examples of their joint work, which exhibit care and thought throughout. They are continually making progress and gaining popularity among their patrons.

THE HOWARD COPYING Co., Bedford, Pa., issue some very neat souvenirs of Bedford Springs and vicinity, which eclipse the disagreeable lithographic imitations which are so plenty at watering places. The HOWARD souvenir consists of a series of photographic views about 2½ x 5 inches, mounted on muslin and eyeleted and ribboned together at one end in a neat colored Bristol board cover, with printed title on one side. It is pretty.







"With anger fierce, but half suppressed,  
she checks his explanations."

MADE WITH  
VOIGTLANDER'S PORTRAIT  
EURYSCOPE.

BRUNHILD

ARTIST—D. B. VICKERY  
HAVERHILL,  
MASS.

THE

# Philadelphia Photographer.

EDITED BY EDWARD L. WILSON.

Vol. XXIV.

AUGUST 6, 1887.

No. 303.

## A WEEK AHEAD.

IN order to bring some important Convention matters to the attention of our readers, we issue our current number, not due until August 6th, one week ahead of time.

This plan will widen the time between our August numbers to three weeks—*i. e.*, our next issue will be due August 20th. Then, instead of urging our readers to attend upon the Convention, we hope to report that it has been an accomplished fact, and a great success.

Owing to the plan adopted by the management for dispensing the report of the proceedings, we shall not give much of a report until an early September number—unless, mayhap, we delay our September 20th issue a few days.

## A LAST CALL.

WE have not considered it needful to do very much editorial urging in the matter of attendance upon the Chicago Convention, for the attractions to be expected are so well known that any remarks from us would seem superfluous.

We do, however, want to say, "one word," and that is—*go!* You will not regret it if you do. In many respects it will be very different from any of its predecessors. The *main* feature, apparently, will be the prize competition, the giving and taking of the awards. Undoubtedly there will be a magnificent exhibition of pictures. Moreover, the collection will be peculiar, inas-

much as the frame display will be less, and the photograph display more.

This fact will afford an opportunity of judging the results on their merits, rather than by the added glitter given them by frame and mat, and decorated spandrel.

We care not how accomplished the photographer may be who studies this vast collection, he will be *benefited*—sometimes, perhaps, against his will.

The management has been working very hard, and one of the results of their work is the discovery that it is folly to try to please everybody. And yet everybody who goes is going to be pleased—*some*.

Aside from the exhibition, the Convention meetings are to be clipped of all useless, time-wasting matters, which the executive can best and quickly arrange, and devoted to the practical consideration of practical matters pertaining to the production of good work. If you can manage it at all, be sure to go. See page 453.

## PAPERS AND PORTRAITS

BY A PROFESSIONAL PHOTOGRAPHER.

As a piece of advice to the amateur, it has been written, "Don't attempt a portrait"

Now, when we take our walks abroad and examine the various examples of professional ability which adorn our thoroughfares; when we observe in the shop-windows a conspicuous example of the ticket-writer's skill, attached to a miserably painted daub, the aforesaid announcement volunteering

the information that a "portrait club is held here;" when we stumble at every turn against mysterious individuals habited in faded garb, and threading their way encumbered by something akin to a compressed milliner's box, and which compressed package turns out to be a specimen of professional talent in the canvassing line, we may well ask why the amateur should be dissuaded entering into friendly competition at portrait-taking; but it is as well to be cautious, even in competitions.

It reads amazingly like an insult that the amateur should not attempt a portrait. How many of the professional brethren are only attempting, even at this late stage of their practice?

The "ponderous pedant who a dictionary wrote, which Pitt read through," suggested the memorable walk down Fleet Street. Not to be outdone in playfulness or taciturnity, let us take a walk about Bond Street. It would be unfair to the profession to perambulate too far east of Temple Bar, drawing deductions from tintypes or "six for three-and-six." These are of the herd and for the herd, and, with all due respect, the herd cannot be posed.

Here is, or was, a fashionable studio, the approach thereto gorgeous in appointment in gold and glass and faded glitter. Two painted representatives of humanity are duly exhibited for public delectation and appreciation. *Place aux dames*. A young lady hanging down the head is evidently ashamed of the treatment to which she is subjected. By hanging the head the damsel is taken at serious disadvantage, and in addition, she appears sheepish or foolish. Had the perpetrator of this attempt at a portrait possessed elementary knowledge of his profession, he would have raised the head, to make the most of those pretensions to beauty which the young lady undoubtedly possesses. The picture has been painted—the term is coloring in these fashionable localities, but paint is the more correct designation; it conveys the idea of color laid on with a brush in a smooth and uniform, or a clean and workmanlike manner, as on a door, and this is precisely the way in which this poor young lady's face has been served.

Here is another attempt, professional

again. An example of the enlarged vignette business, but without the twelve cartes thrown in. A portly gentleman in profile has been taken with the head strictly in a line with his body, and, of course, he droops at the neck, as though suffering from chronic spinal complaint, and has neither strength nor inclination to look as if he were not afraid. How is it photographers persist in doubling up the chests of their sitters? Are they fired by the fixed ambition to produce the hang-dog style? If so, they certainly succeed most marvellously. Attempt as early in his practice as he may, the amateur in *this* respect can never *beat* the professional, but he can run a close neck-and-neck race.

There is a well-known rule in art, that the head and the body should not be turned in the same direction. Why has the professional not succeeded in mastering this elementary truth before dubbing himself an "art photographer?" Is it that his mind is so engrossed in abstruse calculations anent minims and grains, or is he such a fervent admirer of the British matron that he denounces all study of the human anatomy? But if the human anatomy be not mastered, how can he do other than *attempt* the portrayal of a part of that anatomy, and that part the most important one—the human face?

Amateur and professional are alike supposed to read some of those publications "devoted" to photography. One would naturally expect some sort of *respect* as an outcome of this self-appropriated devotion. There are certain meetings relating to things photographic held all over the country. Many a one burns the midnight oil over an elaborate paper; he reads it before an admiring coterie, and, printed in the journals, Sparkins's paper on "Bungles" is for a few short hours the theme of discussion among a certain clique. But what are the editors of those devoted journals about? They report sometimes without assenting or dissenting comment, and the assumption is that the matter so reported must carry with it a modicum—perhaps only an infinitesimal modicum—of editorial sanction.

Let us extract some pearls of great price from a recent "paper." Who tries to do

in photography what is done by the sweeping brush of Millais or Frank Holl? Large heads are taken, and the overwork follows which makes them drawings. Try five-inch direct heads, strongly, but not delicately, lighted, with every scar or wrinkle left on them. Send forth negatives which a retoucher is never allowed to see—rough, rugged, demonstrative, truth-telling photography!

The author of these extraordinary observations should remember that as photography renders the dermal markings by black lines instead of by delicate flesh tints, his five-inch direct head will not alone be excessively coarse as an untouched negative, but excessively untrue to nature as a truth-telling piece of photography. Some people have a notion that a retoucher eradicates every wrinkle shown on the negative. These people may err in innocence, but their notion is error none the less. The negative-spoilers who reduce every face to the waxen appearance presented by a child's doll do not come under consideration. The retoucher who understands his business simply softens or harmonizes the wrinkle or the markings on the skin, so that in the finished print they shall not be represented by photographic purple-black, but by a lightness of tone which shall correspond to the light flesh-tint as seen in nature. Instance the homely freckle. This photograph black. Is it black in the model? Owing to its yellowness it is exaggerated in depth of tone by photography, and the artist will soften it to the extent that it was visible to the eye when standing from the subject the same distance as was the lens when the picture was taken. But at this distance the freckle will not be visible to the naked eye. Then it should not be visible in the photograph. In photography the texture of the skin is represented by black lines. There are no black lines in nature, unless in the state familiar to one's earlier history—"grimy." A dirty skin is not in a condition for pictorial effect—it is coarse, and to reproduce coarseness is not fine art. We have not yet an artistic canon which proscribes the exaggeration of blemishes or defects in our reproduction of the wondrous beauty of nature.

There have been, and in our times there exist, artists who enjoy portrayal of the seamy side of life, and this with almost repulsive definition. A few years since was exhibited by a clever young painter a full-length picture of an old woman; the face was depicted with every mark of age, the bleared lines around the eyes in painful prominence. It was *art* or *skill* faithfully to reproduce the signs of earthy decay; but it was not, and never will be, *fine art*. And if anyone have essential reason to constantly remember the adage, *ars est celare artem*, it is preëminently the photographer, when aiming at the production of pictures worthy to rank as works of *fine art*. With this object in view, he will portray only those impressions of nature which tend to *exalt* the beauty of life. He will neither disgrace himself nor his vocation by a rendition of *exaggerated blemishes and imperfections*. He will rather *soften these asperities*; he will *tone down these pronounced markings*, so that the *effect* of his labors is an elevation of the mind by a contemplation of the perfect and the beautiful, as nearly as in this condition of our existence it can be realized or conceived. His aim will be to *idealize*. The "just as you are" sort of photography may suit the spiritless manipulator and spoiler of dry plates; but the artist—he who *feels* alike his power and his subject—will never rest content unless he raise the mind of the spectator of his works to a level with his own as it existed at the time he portrayed or conceived his picture. The charm, completeness, and perfection of his rendition enables the spectator to distinguish between the real, the "as you are," and the visionary, the sublime, the ideal.

Study, by way of illustrating these remarks, the head of Christ by Michael Angelo. No such perfection of form and expression can be witnessed in the ordinary model. The head is a true ideal, and the contemplation of it elevates the mind from the material—the present stage of existence—to a higher and a more perfect development. It is within the power of every photographer who *feels* his subject to approach this grand ideal, even in delineation of the various items of humanity who cross his threshold. He may not attain to such perfection of

form; but he will wait on and seize the expression—that momentary flash of the great spirit of life, which will brighten his picture and stamp his work as the creation of genius.

Those who condescend to read papers for the improvement of the uninitiated, should please remember that the lighting which may serve the artist in color is totally un-serviceable to the brother of the lens and camera. The claim of lighting in these latter subjects consists in its extreme delicacy. In painting a large head, we look for those bolder effects which in the photograph or miniature would be crude and displeasing. It must never be overlooked that we view photographs at a distance from them measured by *inches*, we place *feet* between ourselves and a picture in oils when judging its merits. The masses of shadow in this latter case blend with the lighter tones at a proper distance between spectator and subject. A close examination would reveal a certain harshness. The tones would not melt into one another as they do when distantly criticized. It therefore follows that heavy shadows in a photographed head will be objectionable by reason of the close inspection to which the picture will be subjected as compared with the oil painting; they will not blend or harmonize; they will be too intense in tone, too deep for the size of the composition.

What, then, shall we think of an adviser who, continuing the remarks which have already been quoted from, says: "For a *change*, underexpose and overdevelop. You will get a Spagnoletto." You will get a harsh abortion which would disgrace a booth at a country fair. A five-inch head or a half-inch head, underexposed and overdeveloped, will render the lights by a chalky whiteness without detail or texture of any description; the shadows will be intensely black, devoid of transparency or definition. The soot-and-whitewash era of photography has been passed even by the peripatetics at the seaside.

In photographing the bust, take especial care to make the most of that amount of chest with which nature has blessed the subject. There must be no lolling in the chair, on the erroneous assumption that an

easy position has been attained. The model must sit up; if obstinate, make him stand. It is not a question of stiffness or awkwardness. The object to be attained is a full-chested base, on which the head is to balance, while the shoulders are perfectly level. There must be no hesitation, no giving way on the part of the operator on this absolute essential to a good bust.

If a three-quarter position be desired, the great stumbling-block will be the hands. The amateur ought not to be embarrassed. The hands are the weak points in three parts of professional work. Stand by a table and touch it; stand by a chair, holding a book or a letter, and plump the lot on the knobbly back of the chair; stand by a jardinière and touch the ferns; stand, clutching a basket of artificial flowers, uncertain whether to drop them or no; stand with the hands behind the back. This latter is a capital arrangement; the troubling members are out of the way in a most natural and unassuming manner. Visit some of the well-regulated studios and this fearful sameness in the "posing" of the figure, this powerful evidence of the paucity of professional power in composition, would lead the critic to imagine that there existed but few poses in nature, and that these poses were somebody's copyright, hired out to photographers at so much per week; that certain patent rights had been secured to stand people in ridiculous postures, and then to perpetuate folly by photographing them. Fancy sticking a young and innocent girl behind a fence, and then coolly requesting her to loll over it. It is carrying jest a little too far when a finely figured maiden is reduced to the humpbacked state of development as she lounges over a post, to generously help out of his dilemma the un-instructed man not equal to the requirements of his vocation. All this trouble because the unhappy "art photographer" does not know what on earth to do with his client's hands. And these are the people who graciously advise the amateur not to attempt a portrait.

Never worry or fidget the subject; let him walk up to the starting-point with all the ease or grace he can muster. Make up the mind what to do, and do it. Let the pose

be characteristic of the person. If the model perceive there is a will and a set purpose, he will naturally submit to that will as being stronger than his own upon the situation; but if he realize that the artist is "on the fence," and uncertain which side to come down, that he has not made up his mind, or that he has no mind to make up, the sitter will naturally come to the rescue, as a good Englishman should, to suggest a way out of the difficulty. As a matter of fact, he will increase the difficulty, and that picture is safe to be another failure.

If in doubt, never betray it, or confidence in the artist (?) is lost. The confidence trick is played in varied guise. An artist had once commenced a picture; the usual friend entered the studio and asked what was in progress. The reply was full of worldly wisdom. "If it come with a beard it will be a splendid St. Peter; if best without a beard, it will do for Queen Elizabeth!"—*The Camera.*

PERTAINING TO THE



THE CONVENTION.

THE Sixth Annual Convention and Exhibition of the Photographers' Association of America will be held at the Chicago Exposition Building from Tuesday, August 9th to Friday, August 12th, 1887, inclusive.

The list of prizes following, will be awarded if the conditions of the several offers have been fulfilled, and enough jurors can be found who are not competitors. There never was such a list of offers made, and the probability is, the world never saw such a collection of competing exhibits as will be gathered there. No doubt, much

enthusiasm and excitement will attend the whole grand affair. One or two additions have been made to the list of offers.

Up to the present time of writing, so far as we are able to collate it, the catalogue is as follows:

A. THE ASSOCIATION OFFERS.

*Class A.*—For collection of Portrait Photography of any size. (Cabinet pictures not competing in Class C, may be included in exhibits competing in this class.

- 1 Grand Prize, Diamond Badge, for the best exhibit.
- 4 Gold Medals for superiority.
- 4 Silver Medals for excellence.

*Class B.*—For collection of large Photographs; contact prints not less than 22 inches long; print not to be vignettted.

- 1 Gold Medal for superiority.
- 1 Silver Medal for excellence.

*Class C.*—For collection of 24 Cabinets.

10 Bronze Medals for merit.  
Parties competing for this Class cannot compete in any other Class.

*Class D.*—Composition or Genre.

- 1 Gold Medal for superiority.
- 1 Silver Medal for excellence.

*Class E.*—Landscapes.

- 1 Gold Medal for superiority.
- 1 Silver Medal for excellence.

*Class F.*—Best Marine Views.

- 1 Silver Medal.

*Class G.*—Best Interiors.

- 1 Silver Medal.

*Class H.*—Best Instantaneous Views.

- 1 Silver Medal.

*Class I.*—Best Architectural Photography.

- 1 Silver Medal.

*Class J.*—Best Photo Transparencies.

- 1 Silver Medal.

*Class K.*—Photography applied to Science.

- 1 Silver Medal.

B. PRIVATE OFFERS.

1. A solid silver cup costing \$250, from the Tiffany establishment, New York, offered by T. H. Blair, Esq., Boston.

2. *Anthony's Bromide Paper Prize.*

A cash prize of \$100 for the best collec-

tion of untouched enlargements, consisting of not less than three pictures, made upon Anthony's Reliable Bromide Paper. Each picture is to have a private mark of the photographer, and a duplicate mark for the use of the judges who are to award the prize. The name of the photographer to be given the donors so they can advise the judges after the award is made to whom it belongs. Donors: E. & H. T. Anthony & Co., 591 Broadway, New York.

### 3. *The Beck Lens Prize.*

*First.*—For the best examples of portraiture, from cabinets to life-sized heads, made with Beck's "Autograph" lenses (of any size not smaller than No. 6), one No. 7 "Autograph" lens, the cash value of which is \$100.

*Second.*—For the best work, other than portraiture, such as architecture, landscapes, interiors, etc., one No. 5 "Autograph" lens of the cash value of \$60.

These lenses will be made by the Messrs. Beck especially for this occasion. They will be appropriately engraved, and will be exhibited during the Convention, by the donors, W. H. Walmsley & Co., Photographic Stock Merchants, Philadelphia, Sole American Agents for Beck's Lenses.

### 4. *Grand Prize offer for pictures on Eastman's Permanent Bromide Paper.*

First, for Plain Enlargements.

*Class A.*—\$150 for the best collection of unfinished enlargements.

\$75 for the second best collection of unfinished enlargements.

*Class B.*—\$50 for the best unfinished portrait enlargement.

\$25 for the second best unfinished portrait enlargement.

*Class C.*—\$25 for the best unfinished enlargement from landscape or marine view negative.

Contact Prints.

*Class D.*—\$50 for the best collection of contact prints.

Second, for Finished Enlargements.

*Class H.*—\$100 for the best enlarged portrait finished in black and white.

\$50 for the second best enlarged portrait finished in black and white.

\$25 for the third best enlarged portrait finished in black and white.

*Class F.*—\$100 for best enlarged portrait finished in color.

Prizes to be awarded by three judges appointed at the Convention. The Enlarging Department of the Eastman Company will not compete for any of these prizes.

Grand total to be paid in cash, at Chicago, by the donors, The Eastman Dry Plate and Film Co., Rochester, N. Y., and London.

### 5. *Prize Offers for Photographs made with the Morrison Lens.*

We are authorized by Mr. R. Morrison to make the following prize offers:

For the best photograph exhibited at the Chicago Convention, made with a Morrison Lens:

First. The choice of a Morrison Leukoscope Lens, cash valuation, from \$80 to \$180.

Second. A set of Morrison Wide-Angle Combination Lenses in a morocco case, cash valuation, \$80.

The lenses to be suitably engraved with the winner's name, etc.

The awards to be made at the Convention by Judges appointed at that time.—*Scovill Manufacturing Company*, 423 Broome St., N. Y., W. Irving Adams, Agent.

### 6. *The Air Brush Prizes.*

First. An Air Brush for the best portrait in black and white finished by the Air Brush.

Second. An Air Brush for the best portrait in water colors finished by the Air Brush.

Donors: Air Brush Manufacturing Co., Rockford, Ill.

In addition, each Air Brush awarded will be accompanied by one of the handsome black walnut easels made by the donors.

### 7. *The Stanley Dry Plate Company's Prize.*

\$100 for the best collection of photographs made on the Stanley plate and displayed at the Convention.

Donors: Stanley Plate Co., by E. & H. T. Anthony & Co., Agents.



### 8. *The McIntosh Sciopticon Prize.*

The McIntosh Galvanic and Faradic Battery Co. offers as a prize for the best 12 photographic lantern transparencies from original negatives of home or foreign scenery (to be exhibited at the Sixth Annual Convention of the Photographers' Association of America), a McIntosh Sciopticon with lamp and jet arranged for both oil and lime light, price \$50.

Donors: The McIntosh Galvanic and Faradic Battery Co., Chicago, Ill.

This, we believe, completes the list.

It is a glorious array, and we trust there will be a special exhibition of the prizes and their winners made collectively in the Convention.

President Cramer desires us to insert once more, the following:

#### RULES CONCERNING EXHIBITS AND COMPETITION FOR PRIZES.

The rules adopted for exhibits of photographs in the Art Hall, and competition for Association or private prizes, have been modified to stand as follows:

All exhibits competing for Association prizes must be without frames or glass. Pictures may be fastened to boards covered with cloth or paper; and a neat moulding, not exceeding one inch in width, may be put around the edge of board to give a finish.

No signs of any description shall be allowed to be placed in the halls devoted to the display of photographs, except one card to every exhibit, said card not to exceed 7 x 12 inches in size, and to contain only the name and address of photographer whose work is represented. This shall not prevent the use of card mounts, with the photographer's address, and any picture may have its title or subject neatly inscribed thereon, but nothing of an advertising nature will be permitted.

No pictures will be allowed in the Art Hall that have any marks indicating what plates, lenses, paper, etc., were used.

Parties displaying pictures in competition for any private prizes, shall be allowed to place on each picture or collection of pictures one small tag or card not to exceed

2 x 4 inches in size with a private mark, which is to be made known to the judges only.

Exhibits conflicting with this rule may be displayed in the Stockdealers' Department, to which the above rules do not apply.

THE EXECUTIVE COMMITTEE.

#### THE RAILROAD ARRANGEMENTS.

"I have completed arrangements with the General Manager of the Central Passenger Association for certificates granting return fare from our Chicago Convention at one-third rates. The certificates for Eastern members may be had by addressing the Treasurer. With such certificate will be sent a list of railroads whose ticket agents will sign said certificate. East of New York the Fitchburg is the only road that comes into the arrangement. Therefore many Eastern members will find it to their advantage to pay local fare to New York and buy their tickets here. New York City people, or those who may be in New York, can get any decided information from Milton C. Roach, 413 Broadway, N. Y.—G. M. CARLISLE, Treas., Providence, R. I.

#### ONCE MORE TO THE FRONT WITH THE LOWEST RATE.

Pack your grip and go to the Photographers' Convention, to be held at Chicago, Ill., during the 9th, 10th, 11th, and 12th of August, 1887.

We have at last completed arrangements with the "Old Reliable" B. & O. R. R. Co. for Excursion rates to Chicago, for parties desiring to attend the P. A. of A. Convention.

Round trip tickets from Philadelphia only \$22.75 on the limited express.

Trains leave as follows: 7 A.M., arriving in Chicago at 9.30 next morning. 5 P.M., arriving in Chicago at 5.40 second morning.

This is a beautiful route, taking in Baltimore, Washington, Harpers Ferry, Deer Park, etc.

If photographers desire to stop over at any particular point *en route*, advise us and we will see that they are accommodated.

*Dining Car* on the train.

Orders for these special tickets may be had by applying to

BUCHANAN, BROMLEY & Co.,  
1030 Arch St., Philadelphia.

This last enterprise should have imitators.

#### REPORT OF HOTEL COMMITTEE.

The Palmer House \$2.50 per day, when more than one person occupies a room. For one person in a room from \$3.00 per day. Rooms on the European plan, when two or more occupy the same room a rebate of 25 cents.

Grand Pacific Hotel, from \$3.00 per day.

The Clifton House, \$2.50 per day.

The Lindell Hotel,

The Sherman House,

The Tremont House,

Will make a reduction of 50 cents on their regular charges, but photographers on registering their names at these hotels must inform the clerks that they require the Convention rate.

The Commercial Hotel. When a room is occupied by two persons \$1.75 per day, single room from \$2.00.

The Gault House, \$2.00 per day.

#### ON THE EUROPEAN PLAN.

The St. Charles, 15 & 17 South Clark St., is the cheapest we put on the list. Rooms can be had here from 50 cents per day.

The Brevoort, from 75 cents per day.

The Windsor, from 80 cents per day.

McCoy's, 75 cents, two in a bed, \$1.00 single bed.

There are a number of cheap hotels in Chicago; we do not think it necessary to name them because anyone wishing to be economical can take a room on the European plan from 50 cents per day and in some restaurants get meals for 15 cents and upward.

C. GENTILE,  
Committee.

#### PRESIDENT CRAMER'S LAST ADVICE.

Be as much prepared to give the advantage of your experience to your colleagues as you are to receive information from them, as in this manner only can be attained the great object for which our Association was formed. Our Association, born seven years

ago in Chicago, returns to its birthplace full of vigor and strength, with the best prospects for permanency, it now being an incorporated society. Come and enroll yourself in the ranks of our grand army which has inscribed on its banner, "The Progress of Photography," help to fight our battles for improvement in every direction, be in the front rank at all times and do not lag in the rear. Use the short time left for preparing and when the time comes, come one, come all.

Fraternally yours,  
G. CRAMER, *President.*

### PHOTOGRAPHY BY VITAL PHOSPHORESCENCE.

BY DR. JOHN VANSANT.

SOME months ago there was published in several scientific journals,\* an article in which I showed how excellent photographic positive prints, on glass or paper, could be made from an ordinary negative by means of the transformed or "stored-up" radiant energy—the phosphorescent luminosity—of certain inorganic substances, especially particular sulphides of calcium and strontium.

Many organic substances also, as is well known, possess this property of storing-up, so to speak, and afterward emitting, as more or less luminous rays, the radiations to which they have been exposed. Crystallized carbon, in form of the diamond, and white paper may be cited as illustrations of this class. A photographic latent image on a bromide of silver surface, capable of being developed, can easily be produced by bringing into *contact*, for an hour or so, in the dark, such a sensitive surface, and an engraving, or some ordinary printing, on white paper which has been just previously exposed for some minutes to the direct rays of the sun.

But I have now to call attention to the curious fact that the kind of light given out by certain *animal organs*, and which evidently in its causation has some close rela-

\* Scientific American Supplement, February 12, 1887; PHILADELPHIA PHOTOGRAPHER, April 16, 1887.

tion to the nervous system and vitality of the animal, and belongs to a different class of phenomena from the phosphorescence above mentioned, can also bring about incipient decomposition in a haloid salt of silver. Moreover, it can do this through a sheet of glass of the usual thickness used for photographic negatives, and, consequently, there is a possibility of producing by such light photographic positive prints.

The following experiment, copied from my notes, proves this :

June 8, 1887. This evening just after dark, I took about a dozen fire-flies (*Lampyrus corusca*), which had been captured a few minutes before on the lawn, and enclosed them in a wide-mouthed vial of some 3 oz. capacity, having a piece of fine white bobinet (such as is used for ladies' veils) stretched over its mouth in place of a stopper. Enclosed thus they would frequently emit the momentary flashes of greenish-tinted yellow light for which they are remarkable, though usually only one insect at the same time would flash. Every few seconds one or another would emit its light for a period which I estimated to average in each case about one-half of a second, and the frequency of the emissions could be increased by gently shaking the vial. When not flashing, the under surface of the three posterior segments of the fire-fly's abdomen, from which the light came, was scarcely at all luminous, but was simply of a bright yellow color. The flashing was plainly under the control of the insect, like its muscular movements. These fire-flies are rather less than three-quarters of an inch long, and the segments which become luminous have, altogether, an area of only about one-eighth of an inch square. The flash is, however, quite bright, so much so that fine print can be easily seen when held close to it.

Repairing to my dark closet with the vial of fire-flies, I placed it to one side, under cover, whilst I arranged and clamped a very sensitive gelatino-bromide of silver dry plate beneath an ordinary negative picture of a landscape on glass, as for contact printing.

The vial of insects was then inverted over the back of the negative, so that only the

fine meshes of the bobinet and the glass of the negative with its gelatine film intervened between the fire-fly's light and the sensitive bromide plate. I counted the flashes, occasionally shaking the vial and sliding it over the negative, till fifty flashes had occurred.

The vial was then removed, the sensitive plate separated from the negative, and an attempt made to develop the latent image, if any existed. Alkaline solution of pyrogallol was used, and, in a few minutes, I had the pleasure of seeing a well marked positive image of the negative picture appear, the plate being somewhat yellow stained, as if from too long an exposure. This was fixed in the usual way with sodium hyposulphide, and is now in my possession—probably the first picture ever produced by the light emitted from a living animal organism.

U. S. MARINE HOSPITAL,  
ST. LOUIS MO., June 10, 1887.

—*St. Louis Photographer.*

## NOTES FROM LONDON.

BY T. C. HEPWORTH, F.C.S.

ALL this week of Jubilee have Londoners been intoxicated, not with strong drink, but with loyalty to Her Majesty the Queen. Never before has the city presented the wonderful appearance which it has worn for the past few days, and it will certainly be a long time before it can have such an aspect again. It has been a fine time for camera work, for the sun has hardly ceased to shine from early dawn until the evening, and the pleasant evening time has been prolonged until ten o'clock. Even after that hour traces of sunlight were still to be seen in the western sky, reminding us that the longest day of all the year has just come and gone.

The cameras have been as busy as bees. "Are you going to photograph the Jubilee procession?" said an apparatus manufacturer to me the day before the eventful day. "I know of dozens who are going to do so," added he. So presently we may look out for plenty of pictures of this noteworthy historical occurrence. No, I did not take out a camera myself. As an humble taxpayer I contributed my mite to the accom-

modation of other people, but I had no seat reserved to me; I could not afford to pay ten guineas for one, and I much doubt whether, if I could have done so, I should have had space for a camera as well as myself. Rooms having windows which overlooked the route of the procession, were advertised to let at as much as two hundred guineas. I did not rent one. Some of the negatives I have seen, and very successful they are.

Many of my readers who have visited the Metropolis will know that there is a certain place of cockney resort called Primrose Hill. To that eminence I betook myself on Jubilee night, in order to see the general effect of London illuminated. The sight was grand beyond description. Just below the hill the private houses were lighted up from top to bottom, many of them displaying a lamp of some kind or other in every pane of every window. Beyond, in the middle distance, was Regent's Park, dark and silent. Then, far away, loomed the great city—a fringe of fire of all colors. Rockets rose from every point, and, as a grand centrepiece, the rays from some hidden electric arc light—which must have been intensified by a reflector or lens—rose upward a mile high, forming by accident or design an enormous aerial V. Turning one's back upon London, the sight in the other direction was grand in the extreme. As ten o'clock struck, a red glare on the horizon announced the lighting of the beacon fire on Hampstead Heath, which formed one link in a chain of fire which encircled Great Britain on this eventful night. It seems a pity that no art—not even photography—could give a faint idea of the beautiful scene. It is one which will linger long upon the retina of the mind; would that it had a more lasting abiding place.

Before these notes reach New York the second Photographic Convention of Great Britain will have met at Glasgow. No doubt many London photographers will find their way there, although it involves a journey of four hundred miles, and to us, in this little island, the distance seems great. There is no city in the kingdom that is better for the purpose, for Glasgow is the centre of some lovely scenery. It is within easy reach of the Scotch lakes, and close to beautiful

Edinburgh. The visitors will therefore have many beautiful excursions into fairyland, and, if the weather should prove favorable, will thoroughly enjoy themselves.

The Woodbury Tissue Company, which was formed to work out the last invention of the gifted experimenter whose name they have adopted, have recently been occupied in perfecting their manufacture. They have sent me a film negative taken upon the new tissue, and very good it is. The material seems to be all that could be desired. It is light as a feather, flexible, and different to some tissues which I have examined—will not split up into leaves, as if the sensitive portion had a wish to part company with its main support. I hope to tell you more about this tissue later on, when it is supplied commercially, which it is not at present. The company deserve to succeed, for they have spent a large amount of money in experiments. In this respect they are like poor Woodbury himself, who was always hard at work spending his money and perfecting a process which has brought large returns to others, but by which he reaped little himself. I trust that the company which preserve to us his honored name will be more fortunate.

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### REPLIES TO FLANDREAU, SR.

ON page 370 of our issue of June 18th, and on page 315 of the *Photographic Times* of June 17th, there appeared "an open letter to Gustav Cramer, President of the P. A. of A.," wherein some very useful suggestions were made in the matter of the conduct of the affairs of the Association.

The *Times* has been fortunate in receiving several replies from distinguished correspondents, but we have only received the following:

DEAR SIR: In the ideas expressed in the open letter to Mr. G. Cramer, President of the P. A. of A., I cannot concur. As regards our coming Convention in Chicago, they are not practical. However, I would inform your correspondent that it is the intention of the Executive to have one day (the last) open to the public on payment of a small fee to keep it select. I presume we shall add

the attraction of music as an extra inducement to draw the public.

If the building in which we hold our Convention was to be open to the public at all times on payment of a small entrance fee, few photographers could be found who would pay the annual dues, or the five dollars entrance fee for one who has not paid up his dues. As I understand it, we do not run the P. A. of A. for the benefit of the public, but rather for that of the members of the P. A. of A. If the ideas of your correspondent were carried out this year, the Convention would be for the interest of the photographers of the city of Chicago instead of those who came a long way, and have done much to make our Association a success.

C. GENTILE,

Local Secretary of the P. A. of A.

CHICAGO, July 10, 1887.

DESIRE to say that I am always glad to receive suggestions as to the best way of making our next Convention a success, but I do not know how Dr. Edward L. Wilson can figure out a cost of \$80,000 (as Mr. Flandreau states) for the last Convention, unless he has aggregated the sums supposed to have been expended by each individual or firm attending. Whatever the aggregate expense may be, who can figure out the immense advantage derived from our Conventions? Would photography have advanced so rapidly in this country without the aid of our meetings, where we can study the finest work that can be produced by our art as collected in our exhibitions? The individual costs are entirely under control of the individual; but speaking of our late St. Louis Convention, I have thus far not found one who felt sorry for the money it cost him to attend. On the contrary, all were well satisfied, and felt well reimbursed in knowledge and pleasure. The decision of the Executive Committee that the pictures competing for Association prizes at the coming Convention shall be without frames and glass, will help to reduce the most important part of the expenses in making exhibits away from home, and the Executive Committee hopes that this rule will be considered favorably by the fraternity, as it is understood that in a photographers' Convention the glamor of frames, plush, and glass, were not

necessary, and that the merits of photographic work can be compared and judged better if the eye is not influenced by these auxiliaries.

We should not have adopted this rule if we had intended to make our Exhibition more for the public, as Mr. Flandreau proposes, and we have always held that our Conventions and Exhibitions are mainly for our own mutual benefit, and that our annual gatherings would lose their specific character and value if the public be admitted daily during our Convention, and it would interfere with our meetings and discussions, which have only the short duration of four days. The public has been admitted to our Exhibition at a limited time, which was announced in the daily papers in St. Louis, as well as at previous Conventions, and the officers of the Association have, upon mature consideration, deemed this plan as the best to further the interest of the Association, which should not be sacrificed for the sake of a comparatively small additional sum which we might draw from the public. I say comparatively small sum, for I cannot see how we could draw from the public anything near like the sum Mr. Flandreau suggests, unless a plan would be adopted to keep all pictures on exhibition open to the public for a certain length of time, say one week after the close of the Convention.

The public of Chicago will be invited to visit our Exhibition at a limited time, and no efforts will be spared to have a better attendance than heretofore. The matter is in the hands of our Local Secretary, who will, no doubt, make satisfactory arrangements.

In regard to the management of our Association, it strikes me as if it compares very favorably with the old N. P. A., which was wound up on account of lack of funds, while the P. A. of A. is to-day an incorporated society, with a good cash basis, and a good prospect for the future.

As regards charging stockdealers admission for their employés, it is something I have not been cognizant of. A statement from the stockdealers to the Executive Committee on any grievance they may have will be promptly acted upon.

In conclusion, I wish to express the hope that we shall have the pleasure of meeting

Mr. Flandreau, and all the old veterans, in Chicago, to have their advice and help for the future welfare of the Association.

G. CRAMER,  
President P. A. of A.

St. Louis, Mo., July 11, 1887.

We should like to take a personal hand in this discussion, since both Mr. Flandreau and Mr. Cramer have alluded to our remarks made soon after the St. Louis Convention, but shall defer until after the Chicago Convention is ended, except to say now that Mr. Cramer misunderstands both Mr. Flandreau's and our remarks—or the gist of them.

Our argument mainly was, and is, that the photographic fraternity does not receive *enough* benefit for the money which the annual Conventions cost. In other words, the Conventions should do more good than they do. Time will show, and we will presently try to help it.

### NEGATIVES COLORED BLUE BY ALTERNATE USE OF PERCHLOR- IDE OF IRON AND RED PRUS- SIATE OF POTASH.

A negative weakens in a solution of red prussiate of potash; it also weakens in a solution of perchloride of iron. But if a weak negative is plunged into perchloride of iron and then in prussiate of potash it will become a greenish-blue by the reaction acting in the gelatine itself, and will increase in strength almost without limit according to the strength of the solutions and the perseverance used in passing the negative from one liquid to the other at different times. If the two baths are mixed, the reaction, naturally, takes place at once, and afterward there is no further action on the negative. It is, therefore, necessary to drain and even to pass through water to remove the excess of the liquid from the surface of the negative everytime it is carried from one bath to another. The greenish tone passes easily to a decided blue by washing with weak ammonia, which seems to still further intensify the negative, or with pyrogallic acid, etc. It remains to be seen if these tints of the negative, unfavorable for printing, might not be advantageously modified without again weakening the negative. I have not yet been able

to push any further these experiments which date from yesterday only, nor to apply them to negatives developed with pyrogallic acid; it is, however, well ascertained now that a negative developed with iron may be given a very beautiful blue tint, more or less accentuated, which may be useful for reproductions, and that a weak negative may be very greatly strengthened by this same blue tint.—M. RICHARD in *Progrès Photographique*.

### PLATES COLORED WITH GELATINE CONTAINING NITRATE OF SILVER.

M. Scola has made known some interesting experiments made by him for producing colored glass for lighting the dark room, with gelatine and nitrate of silver. He made several mixtures which gave him very decided results. Here is one of the formulas used by him:

Water	. . .	100 c.c. (3 fl. oz. 3 drs.).
Gelatine	. . .	5 grms. (77½ grs.).
Nitrate of Silver		1 grm. (15½ grs.).

This mixture poured over the surface of a pane of glass gave a coating which soon set, and which he exposed for some time to the direct luminous rays; a reddish-brown color was produced owing to the presence of the silver salt. This being done wash to remove all traces of the free nitrate of silver, and there remains a colored surface through which the actinic rays do not pass. By increasing the dose of nitrate of silver 2, 3, and 4 per cent., the color becomes more intense. The product obtained will be fixed if the washing removes all the non-transformed nitrate of silver, and we have here an easy method of producing plates of glass of a non-actinic color either for the lanterns of a dark-room or for panes of glass in the windows. M. Scola remarks with reason, that the means of preservation against reduction by the luminous action is thus furnished by the sensitive salt itself. The plates thus colored have not yet been examined with the spectroscope. It would be curious to verify by means of this instrument at what line stops the power of penetration of the rays of white light.—*L'Association Belge de Photographie*.

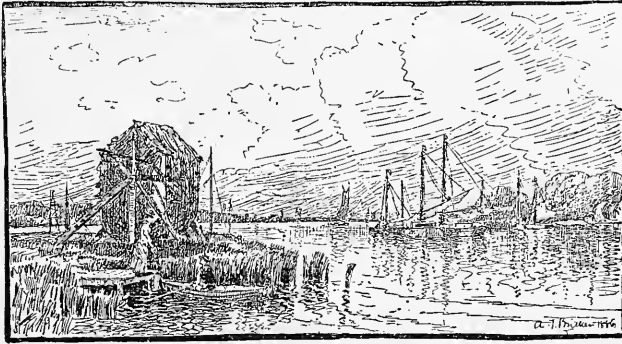
## SEA SCAPES.

IN continuation of the paper which appeared in our last number, on "Outdoor operations," thanks again to Mr. Kirby of the American Art Association, we are enabled to present further remarks, this time

do not impress us as having been taken instantaneously. Naturally we haul *Quarter-Century* out and inquire why? (So we should.) The answer, Sections 76 and 77, pages 173 to 175, is as follows:

"Now we leave portraiture for a little, and step up to a class of subjects that is becoming quite the rage with camera lovers. We choose for our pointer Edw. Moran's breezy picture "Off Cape Hatteras."

"What a brilliant effect of light through breaking clouds there is here—just such an effect as one naturally expects to see off Cape Hatteras and at kindred spots. And what



"Fog Clearing," By A. T. BRICHER.

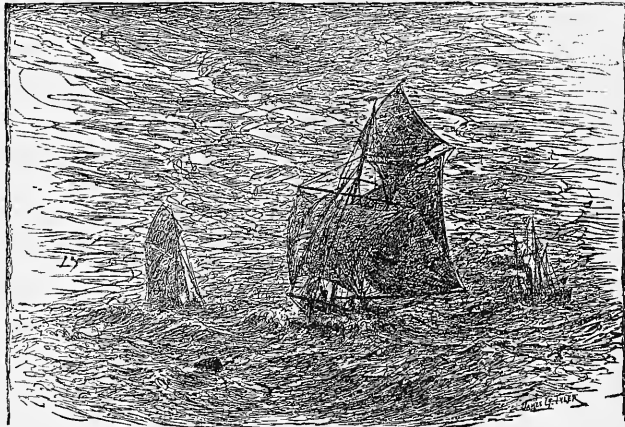
on the fascinating and often disappointing subject of "Sea Scapes."

To begin the work in earnest, we select when we can, for the firm establishment of our camera, some such point as has been painted for us by Mr. A. T. Bricher, in his "Fog Clearing," and watch for our subjects to come along.

We know full well that the light should be brilliant; that masses of shadow should be avoided; that the breeze should be lively and that we should not only be on the alert, but call into play all the art-principles we have ever imbibed to help us in such unearthly work. If we are fortunate, a combination like "Squared Away for Home," by Mr. James G. Tyler, comes along and we "snap." It is a little

model—full of go—laden with lovely light and shade and enough contrast in it to excite our admiration. It is not always so with such shots, however. As a rule they

a sense of *motion* is given by the bellied waves, the rolling vessel, the incline of the spars, and the 'noise' of the clouds. Here, observe, the same rules and forms of composition are followed as are taught for portraiture. If the picture is measured by 'feeling' then we find it to come up fully to the requirements. Is there not a feeling



"Squared Away for Home," by JAMES G. TYLER.

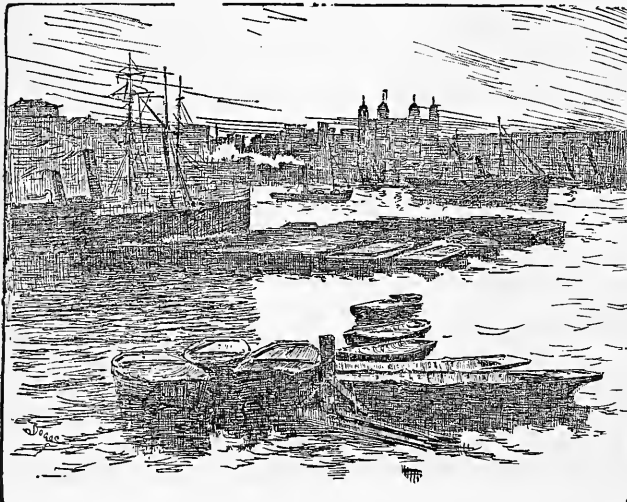
of 'go' about it which is most charming which would be *gone*, if the wind was hushed, and the masts stood straight, and the water was calm? It is a lovely example

for the catcher of marine camera views. Rarely can we secure such admirable technique in our instantaneous views. There are a few good reasons for this, which can only be partly obviated.

"One of these is our modern plates. And our drop-shutters are in such a hurry that we catch the subject between breaths, as it were, and do not secure the sense of motion. One reason of this is, as a rule, the photographer posts himself upon shore and points at his models from their sides. An end or three-quarter view would be better. The only difficulty is to find a place to post the camera. From a long pier is best. But we are trying to understand technique now, and when we do we shall be better secure its correct rendering in our work."

And this is a good answer too. Knowing the facts, we contrive next time to expose only when the subject presents itself in proper form or action.

Because a vessel is sailing at great speed is no reason why that fact should be expressed in any and all pictures made of it.



"The Thames, near the Tower of London," by FRANK M. BOGGS.

In no subject does one want to *study the lines* so much as when snapping at the

white wings on the water. No piece of sculpture presents a greater variety. "What are we to do, if the thing don't come along



"Off Cape Hatteras," by EDWARD MORAN.

properly?" Why snub it altogether. Stand no flirtation, but wait until you are suited.

Let us try again. This time we halt at some place like an embankment on "The Thames, near the Tower of London," by Mr. Frank M. Boggs. A glorious opportunity is offered for the most alert camera. And now how comically innocent they look as they unsuspectingly pass us by. The tall masted, majestic ship, the dignified, steady steamer, and the busy tug with its long tow, all push by; with them stores of wealth.

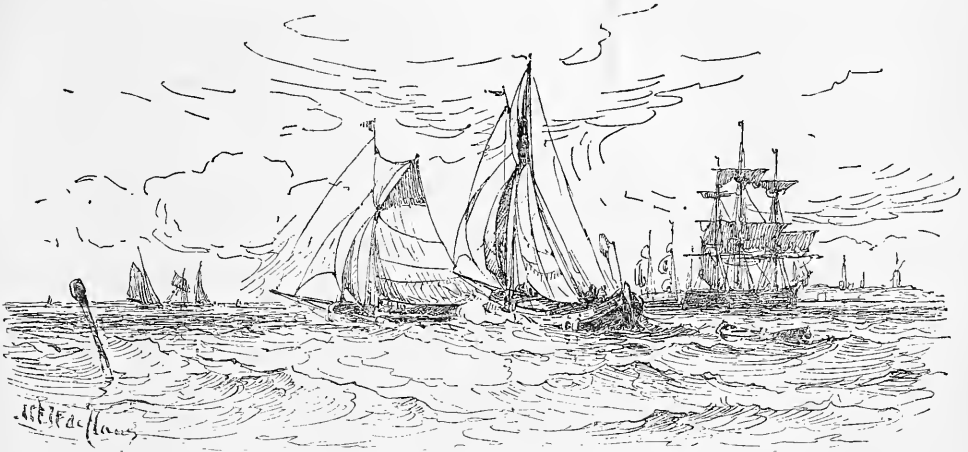
But none of them are

half as picturesque as the old round-bowed lugger with its bellied sail and burden of



ballast it may be, as shown us so deftly in his "River Boats—Coast of Holland," by Mr. M. F. H. De Hass.

ing joys of such pictures as "The Close of a Summer Day," by Mr. F. K. M. Rehn, whose father was a noted photographer, and

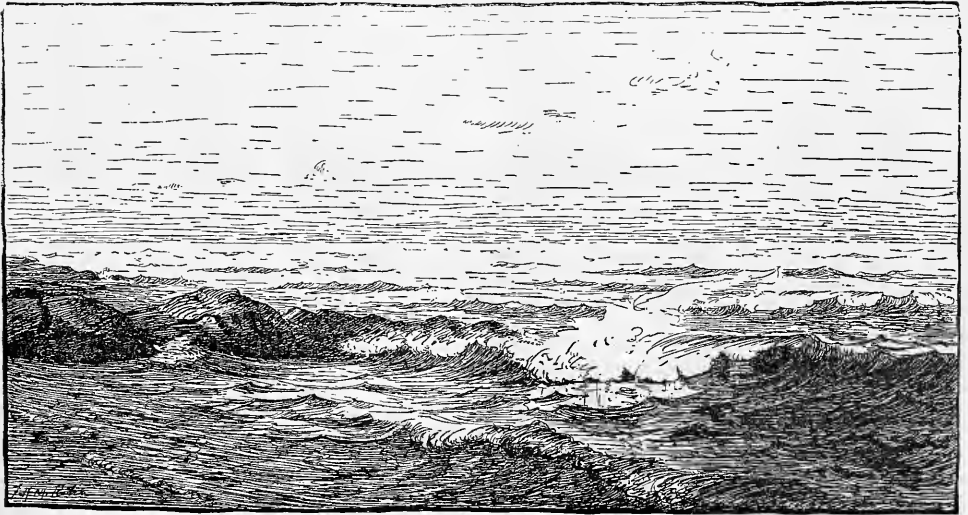


"River Boats—Coast of Holland," by M. F. H. DE HASS.

Here the go of the main figures is helped by contrast with the steady old sailer coming up slowly in the distance. Such a subject as this is worth a dozen racing yachts, be they ever so slickly trimmed and aristocratically manned.

you will be soothed and comforted and rewarded for all the care you will exercise in selection, lighting, and exposure.

But that brings to our attention a part of Chapter XI. of *Quarter Century*, on "Exposure, or the Question of Time," which



"The Close of a Summer Day," by F. K. M. REHN.

And yet, if all these suggestions throw you into despair, come back until you learn to be quicker on a choice, to the never end-

follows, as appropriate to this topic, and in conclusion of the Summer series of "chit-chat."

## EXPOSURE, OR THE QUESTION OF TIME.

101. WHILE an overtimed picture is to be deplored, be it remembered, there is more likelihood of such an one being "saved" in development than there is of an underexposed picture. You cannot hope to bring out by development beauties and qualities which you have not allowed to be started into existence by sufficient exposure.

*Note 101.* Undertimed photographs are to be seen everywhere, and from all places. It seems to be a common disease among photographers; *stopping off the light just a little too soon*, thereby spoiling what would have been a good production. Every photographer should examine every photograph he comes across, his own work as well as the work of others, with an eye of inquiry; if it is good, find the cause of its being good; if "better," why it is better; if "best," there is certainly a reason for its being so, and an examination by an experienced eye will soon determine wherein it is better, and why it is better. Short exposures in most cases produce startling effects. As a general thing, however, there is a lack of detail which nearly ruins the work. A little more time given the exposure would have produced a first-class photograph. On the other hand, too long an exposure produces a flat, low tone, worthless print. Too much or too little are equally bad, but the failure in the latter is much more frequent than in the former.—J. B. WEBSTER.

102. Exposure is largely a matter of inspiration, of feeling. There is no royal road to its proper attainment. You must learn how, just as you must acquire musical excellence or master a language. You must go through the experience and the plate-spoiling with the disappointments incident thereto. Then it will come to you—to stay.

When to expose is the first consideration. The *art* side we have looked at, and we have considered the lenses. The light side, too, we understand. All these in order, the atmosphere may cast a dozen wily influences over things generally that will hold success with a grip that will baffle our best brains to unclasp.

Then the inspiration will come in, and, if

you are watchful and quick, you will come out the victor.

*Note 102.* No rule can be laid down, the photographer using his own judgment as to the position of the sun that will produce a good picture. It may be almost invariably accepted that the sun should not be in the same position as the photographer; that is to say, with its rays parallel with the lens and camera. In landscapes a side light is, as a rule, to be chosen, with modifications according to circumstances. In the case of a river with trees on both sides, the chief care is to expose when the sun is in such a position that any very dark patches in the foliage do not exist, or at least not inharmoniously; also, that the shadows from the trees of one bank of the river do not darken the foliage of the other bank to such an extent as to rob of its pleasingly clear definition. Clear definition must not be confounded with hard effects; most beautifully soft and yet clear definition with atmospheric effect may, and should be, obtained without any tendency to hardness. In the majority of cases it may be taken as positive that foliage is better rendered without the aid of the direct rays of the sun; in cases where water forms part of the picture, it is *almost* always so. But very often very fine and most desirable effects may be produced by dividing the exposure, giving one part while the sun is shining and another with diffused light. We generally find that the lighted or partly lighted side of a landscape is taken, and, of course, in a large number of instances it is a most suitable proceeding; but there are sometimes most beautiful exceptions to that mode of procedure, such as taking a view with the shaded side of the picture toward the camera. The time of exposure, like many other features in photography, cannot be learned; it requires a true artistic feeling in the photographer, strengthened by experience.

A few remarks under this head on portraiture. The time at which to expose is a point quite as important in portraiture as in landscape photography. I have always found that it is a good thing to allow the sitters some time to look at specimens, and stroll about the studio or place of sitting, as that allows time for their nerves, heart, and

muscles to get more composed after their walk or ride. By giving them a number of interesting photographs to examine while you prepare, their imaginations and temperaments get generally a little more calmed, and the chances are much more in favor of a good picture.—H. A. H. DANIEL.

103. *How to expose* becomes the next anxious inquiry. It might be answered with a single word—enough.

I have already hinted at my belief, that a long exposure is preferable—*i. e.*, relatively long. It is my habit not to employ "lightning," nor very quick plates, if my subject will permit me to use slower ones.

Neither do I think it a good plan to use quick plates with a very small diaphragm for ordinary subjects.

*Note 103. How to Expose.* For views, I maintain that always, a *long exposure and weak developer* give far the best results. I am of opinion that when a strong developer is used there is a much greater likelihood of hardness, and as a strong developer requires a quick exposure, I do not think that such detail is secured as with a long exposure; that is to say, in taking, for instance, the case of a landscape with fairly lighted parts, and also very dark portions in the depths of the foliage, presuming a short exposure be given and a strong developer used, I believe that the well-lighted parts assume a certain degree of hardness, and the dark portions of foliage do not contain so much detail. But suppose we use a weak developer and give a long exposure, the details in the deep shadows get a longer time for impression on the film, and can be brought out slowly but surely by building up the negative, and at the same time the weakness of the developer prevents any hardness in the well-lighted parts.

In making exposures there is one thing that should be continually studied. It is to endeavor to gain a tolerably accurate idea of the actinic power or value of different colors in nature, such as the light and dark greens, browns, grays, yellows, and reds. This can only be acquired by carefully noting the exposures and examining afterward the negatives, carrying the landscape in the eye as well as possible. By so doing a far better idea of the required length of expo-

sure is obtained than by any other method I am acquainted with. We cannot rely on apparently equally lighted subjects, or recollecting the exposure of one subject and applying it to another. What appear to be equally lighted subjects are very often not so. By making this a little point of study many a negative will be saved from under- or overexposure.—H. A. H. DANIEL.

104. Quick plates are a splendid reverse power, but then were never intended for general use.

The doctors agree on this point, therefore I need only refer to their notes, rather than expatiate myself.

*Note 104.* For landscape work, where an instantaneous exposure is not required, I believe, and always advise, that a slow plate of fourteen to sixteen degrees Warnerke will give better and more satisfactory results than a very rapid plate, and for the following reasons: A slow plate gives great contrast and a brilliant image, while a rapid plate gives a soft effect and a certain flatness, which are not easily overcome. In portraiture, where hard contrasts should be avoided, these rapid plates are very suitable. The brilliancy and intensity in a slow plate are, of course, largely due to the inherent chemical quality of the emulsion.

Again, more latitude is allowable both in exposure and development with a slow plate. A photographer may be perfectly acquainted with the capabilities of his plate and lens, and on ordinary subjects will hit pretty nearly the right exposure nine out of ten times. But the image on the ground-glass is deceptive, and there is an endless variety of subjects where the most expert photographer is puzzled, and hardly knows what exposure to give. For example, dimly lit landscape under trees; autumn foliage with non-actinic red, yellow, brown, and dark green leaves; heavy black foregrounds with well-lit distances, need all the latitude possible, and here is where the advantage of the slow plate comes in. In doubtful cases, like those mentioned, a very full exposure may be given, and five or even ten seconds too much will not prevent a good negative from being obtained, while with a rapid plate a difference of two or three seconds may ruin the resulting negative, for it is

almost impossible to get anything but a flat picture on an overexposed rapid plate.

It may be suggested that by using a small diaphragm the same latitude of exposure may be obtained with a rapid plate as with a slow one. This may be so to a limited extent, but working a very small diaphragm lessens the atmospheric effect and gives a certain flatness and lack of brilliancy. Diaphragms ought not to be used as a means to lessen the light, but only to get a sharp picture all over the plate; the largest diaphragm that will effect this is the right one to use, a small one will give only monotone pictures without any advantage.

Then, again, in development a slow plate will stand more variation and rougher treatment without fogging. It is easier restrained, and can be forced, without losing its printing qualities, to an extent which would be total ruin to a rapid plate. The greater intensity of a slow plate allows one to use a very dilute developer, thus keeping the plate under perfect control, and saving many negatives that would otherwise be lost through overexposure, but with a rapid plate no such treatment is allowable, and overexposure cannot be corrected by diluting the developer, as the resulting image will be flat and thin, and worthless for printing without intensification. Such a plate can only be saved by the addition of plenty of bromide from the very beginning, and even then it is necessary to vary the component parts of the developer so often that the whole operation becomes perplexing and uncertain.

My advice, therefore, is, use a slow plate for landscape work, give generous exposure and dilute your developer.—DR. S. C. PASAVANT.

It is a fact that the great sensitiveness of dry plates facilitates in an extraordinary manner, the taking of instantaneous pictures, and that there are even cases when it seems impossible to give short enough exposure.

Dr. Neuhaus, who has recently returned from the Sandwich Islands with a number of remarkable pictures, declares, that he found it necessary to make use of a Steinheil wide-angle lens with the smallest top—that is, the smallest opening which can practically be used in operating upon open, sunlit land-

scapes. All views not so taken with the instantaneous shutter, showed themselves overexposed, so brilliant is the light in that region. But it does not follow that we should always use for instantaneous work and under every circumstance a wide-angle lens with smallest top. What would do well enough for open landscape will not serve in shady forests, or narrow places, or rocky cavities where the light of the broad sky is only filtered, as it were, through small openings, and what is possible in the broad light of noon is not possible when the sun is declining or when the sky is overcast with clouds. Finally, a point of great importance is the distance of the passing object from the camera, the manner of its passage, and its position, whether perpendicular to or nearly in the direction of the camera.

Every professional of experience is well aware that an express train which impresses itself upon the field of vision with a velocity of thirty feet with an objective of six inch focus at a distance of twenty paces, and which lasts for one-twentieth of a second, makes a motion of one-twenty-seventh of an inch upon the plate; that is, almost a half line, which will give the impression of a blur. At double that distance, forty paces, the blurring is only half as much; at three times, one-third; and much less when the direction of motion is oblique to the axis of vision. Such facts are usually overlooked by the amateur.

Photography is at present an easy thing, but a certain amount of mother wit is necessary when we expect to succeed with difficult subjects.—DR. H. W. VOGEL in *Quarter Century*.

### WHAT CAN BE SEEN IN THE CENTURY OFFICE IN NEW YORK.

THE other day I was looking at some drawings in the *Century* office, when Roswell Smith paused beside me to remark: "It is a pity that we cannot put the original work of these artists before the public."

"Yes," I replied, "but photography is making advances in this direction." "Speaking of photography," said Mr. Smith, "we are using it in a very curious and, I believe, entirely new manner." "And what is

that?" I naturally asked. "We are using photography to preserve the 'copy' for the *Century* dictionary. We have already 25,000 sheets.

"Each of these sheets, which is of brown paper, is 10 x 12 inches. Each, or nearly every one, has upon it a varying amount of printed matter taken from our Imperial dictionary, with the addition of many paragraphs in writing, and a constant succession of interlineations, corrections, and additions. Now, it is necessary to keep this great mass of manuscript at hand in the printing office, for frequent consultation, for cross references, and matters of that kind. This 'copy' represents the work of years by a large number of people, and a great expenditure of money. More than this, it represents the labors of the leading experts in different branches of knowledge all over the world.

"Suppose it were destroyed. To say nothing of the obvious loss, some of those experts might have died before their opinions could again be obtained. Of course, the 'copy' is kept in fire-proof cases in a fire-proof building, that of the De Vinne Press, but a spark falling among this bulky mass of paper might cause irreparable damage, even though the building itself was not injured. We had intended to insure this manuscript for \$150,000, but it is evident that the insurance money would be little consolation. This was the problem, and now let me show you how we solved it."

Mr. Smith led the way into the art department, where we were met by Mr. Fraser. A sheet of the original manuscript was shown me, which was 10 x 12 inches. After this Mr. Smith handed me a little glass negative,  $1\frac{3}{4}$  x 2 inches. "There," he said, "is an exact copy of this sheet." Sure enough it was. A print was also shown, and with a magnifying glass the written as well as the printed words could be distinctly read. Another print was shown, the size of the original sheet. Of course, the reproduction was faithful in every detail.

"You see the method," said Mr. Smith. "We have each sheet photographed and reduced. In the original size it would form an inconveniently bulky mass, for there are, up to the present time, 25,000 sheets. But it is neither necessary nor desirable to retain

this size. We have the photographic negatives reduced to a size easily stored and handled. Then, if occasion requires, these photographs can be 'thrown up' to any size which may be necessary. If we choose we could have solar prints as large as the side of a house. We could readily enlarge them to the size of stereopticon pictures.

These little negatives, therefore, give us an entirely reliable set of duplicates of all our copy, and instead of paying insurance rates on \$150,000, and also running the risk of probably irreparable loss we rest secure in the possession of these negatives, obtained at a cost of not more than \$300. It was certainly a shrewd and curious adaptation of photography. "Has this ever been done before?" I asked. "Not to my knowledge," replied Mr. Smith. "I do not think that a mass of book manuscript has ever been duplicated in this manner."—*Correspondence Boston Herald.*

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## PHOTO-ENGRAVING PROCESSES.

MUCH has been written about the steady growth of photo-engraving and heliography in general, but this growth, considering the benefit to be derived from these processes, is very slow. Indeed, the art to-day is successfully practiced by only a few firms, while it ought to be a daily factor in the establishment of every photographer.

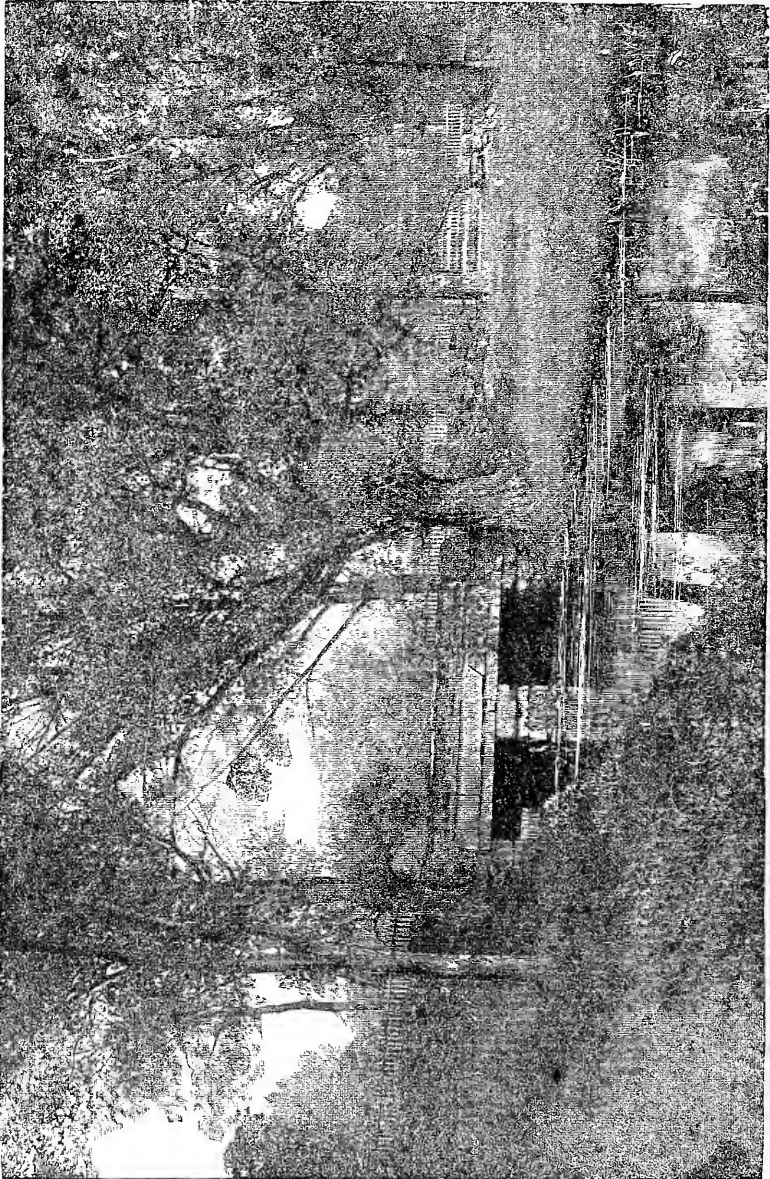
The reason this is not the case, lies principally with the different photo-engraving processes. They are still too complicated, too costly, and require an expert, who, to be of efficient value, must not only know one (his own) but all other processes.

The nature of the prints or originals to be reproduced is so manifold that a practical photo-engraver cannot apply one and the same process to every case, and if he knows only one process, it is natural that sometimes his work will fall below perfection.

Besides, as the photo-engraving processes are now practiced, it requires the coöperation of at least four factors to make the work a success. 1st, an artist; 2d, an able photographer; 3d, an experienced photo-engraver; 4th, an artistic wood-engraver and finisher. Besides that, when all these have been at work, be it in so many person-

alities or, as may sometimes be the case, one person uniting in himself all the above qualities, the plate is not yet finished but in some cases has to go to the electrotyper.

process draws the entire attention of one to the success of the process, and what may thus be gained is lost on the other hand, by neglect of other business.



Most existing processes are too complicated for the daily routine business of a photographer. The practicing of any such

Again, to have negatives as you want them, great care and experience are needed. It is, therefore, for a photographer without

this knowledge a risky undertaking to introduce any of the photo-engraving processes.

We may say that we are collecting material for full information, to be given our readers on this subject. Meanwhile, they may get ready by soliciting orders and having them filled by our various friends perfect in the work, such as the Moss Engraving Co., The Levytype Co., and now Mr. T. H. Gast, a new advertiser. Mr. Gast calls his process the "Photo-stigmography." The example of his work, as seen on page 468, "A New Jersey Landscape," gives evidence of the best results.

Mr. Gast has patented his several processes, and if he listens to our persuasion, he will probably make it possible presently, for others to work after his manner of reproduction. Meanwhile, we commend the subject to the consideration of our readers interested.

### PRACTICAL POINTS FROM THE STUDIO.

**PYROGALLOL AND ANALOGOUS SUBSTANCES.**—At the *Edinburgh Photographic Society*, Dr. T. W. Drinkwater made an interesting communication on pyrogallic acid, its uses in photography, its chemical nature, which places it in the group *benzine*, *phenol*, pyrogallic acid (*pyrogallol*), *hydroquinone*, etc. The author tried several other analogous substances as developers, such as phloro-glucinol, hydro-oxyquinol, but without success. With pyrogallic acid, Mr. Drinkwater made use of three alkalies: potash, soda, and ammonia, obtaining the same results, except that soda gave him prints a little more red. Phloro-glucinol develops the image without alkalies and even acts rather quickly, but the image is soon veiled.

**PHOTOGRAPHY IN AUSTRALIA.**—At the London Photographic Association, a photographer of Melbourne (Australia), Mr. C. E. Brown, gave an idea of the condition of commercial photography in that colony. He remarked that photographic societies did not generally succeed there, which he attributes, without hesitation, to local jealousy. In regard to the quality of the

work, Mr. Brown assures us that it does not differ from what we see here. (We may be allowed after having examined a large collection of Australian photographs, to express, for the present, a contrary opinion.) According to Mr. Brown, about one-half of the Melbourne photographers still use wet collodion. Almost all the prints, said he, are glacé, but vitrified images and collotypes are almost unknown. The style of prints known by the name of opal-carbon, are in favor.

**PHOTOGRAPHY AND THE CLOUDS.**—In his charming work on popular meteorology called *The Weather Book*, the late Admiral Fitz-Roy, has given some very beautiful drawings of the different kinds of clouds. It is a very interesting study, both for the meteorologist and for the landscape painter, these thousand and one forms taken by the vapor of water spread through the atmosphere of the earth. But these numerous forms have been classified in a small number of fundamental divisions, a more or less intimate mixture of which gives rise to all the others. Thus we have the great cottony mass called *cumulus*, the little high cloud called *cirrus*, then the varieties called *cirro-nimbo cumulus*, *cumulo-stratus*, *cirro-stratus*, etc., each of which gives a particular aspect to the landscape. Nothing is finer than the dappled sky which announces rain after a long dry spell—nothing more horrifying than the *nimbus* which brings the storm and inundations.

The reproduction of images by means of drawings is very difficult, and only first-class sketchers succeed in doing so, and the same remark applies to the painter. Since some years photography, on the contrary, has succeeded in the most satisfactory manner. It was curious to seek if the characteristic forms of the different kinds of clouds would be met with in all parts of the world, as they are seen in the north of Europe. This question has received an affirmative answer, thanks to the efforts of the rich shipowner, the Hon. Ralph Abercromby, who has just presented to the Royal Society of London, a series of cloud photographs obtained in his far off voyages. In all latitudes the varied forms so familiar in London

and Paris, are found with their particular meteorological character, each exercising everywhere its special action on the weather.—DR. PHIPSON in *Moniteur*.

ON THE NATURE OF THE LATENT IMAGE.—Dr. Hodgkinson publishes in the *Photographic News*, some observations on the nature of the latent image. As in the case of Mr. Carey Lea, for three years also the author has given attention to this question. He is of the opinion that the photo-chloride, that is to say, the colored compound formed by the action of light, is a kind of oxy-chloride. Mr. Carey Lea asserts that it is a compound of chloride and sub-chloride. Mr. Hodgkinson thinks that it is a compound of chloride and sub-oxide. After having been thoroughly washed and dried in a vacuum, the photo-chloride loses a little more than one per cent. of its weight by calcination, loss that the author attributes to the oxygen.—*Moniteur*.

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### OUR PICTURE.

VERILY, this is the age of progress! Hardly has the world recovered from its astonishment at such wonderful inventions as the telegraph, the electric light, the telephone, photography, before improvements follow each in such rapid succession, as to fairly bewilder us. This is particularly true of our art-science, the great variety of uses to which it can be applied rendering the invention of improved apparatus and methods practically endless. The manufacturers of apparatus have, particularly of late years, produced tools which successfully meet every possible requirement, and to work with which it is a real pleasure. The most exacting department, however, has been the production of portrait-lenses, and here but few opticians have won marked and honorable distinction, foremost among whom are Voigtländer & Son, whose remarkable achievements constitute an important chapter in the history of photography, and need not be repeated here. The triumphant career of the Euryscope is well-known. Scarcely had the applause, which greeted the advent of this popular lens, died away, when the enterprising firm was devoting its energies and skill to the construction of

a portrait-lens, which would unite with extreme working-speed absolute freedom from distortion—*i. e.*, the power of not only yielding correct perspective, but also perpendicular lines with mathematical precision. In other words, the best qualities of the portrait-lens and the Euryscope, which latter is perfectly rectilinear, were to be embodied in one lens, which, if a success, would prove an invaluable aid to studio-photography, by consigning to oblivion the only lingering obstacle in the path of artistic progress, *viz.*, distorted representations of backgrounds and accessories.

The initial lens of this new departure in photographic optics—appropriately termed "Portrait Euryscope"—was finished in the spring of 1886, and submitted to a careful test by the Photographic Society of Vienna. Among the gentlemen actively engaged in determining the value to science of the new lens, were such men as Prof. J. M. Eder, Victor Angerer, Fritz Luckhardt, Dr. Szekely, and J. Löwy. The report of the experts, which was published in the columns of the PHILADELPHIA PHOTOGRAPHER not long ago, was extremely flattering, and trials made since with the Portrait-Euryscope in England and in this country conclusively prove that the powers of Voigtländer's latest production cannot be overestimated.

Upon inspection we find the Portrait-Euryscope to consist of two perfectly symmetrical combinations, each being sealed, which is not the case with the regular portrait-objectives, where the lenses of the rear combination are separated by a ring. The lenses being cemented together in the Portrait-Euryscope, the number of reflecting surfaces is reduced, and by this means a considerable amount of light, formerly lost, is saved, and all diffusion of light is overcome, thus naturally imparting to the resulting pictures increased brilliancy and improved definition and, as careful experiments have shown, not a distortion. The lens is constructed in two series as regards focal length. The short-focus series, ratio of aperture to focal length 1:3, or  $\frac{3}{4}$ , is adapted to general portrait work in very short or dimly-lighted studios, and, with the exception of the two longest sizes, is provided with rack and pinion movement.



The longer-focus series, ratio 1:4½ or  $\frac{F}{4.50}$ , is also designed for general portrait-work, but includes in its uses, groups and standing figures, but in this respect is more serviceable than the regular Euryscopes, only when there is a lack of working-room. The Portrait-Euryscope is also very much lighter and shapelier than the regular portrait-lens, No. 5 A, for instance, which is much used for plates 10 x 12 to 11 x 14, being only 7 inches long and 3¼ inches thick. We regret not to be able to lay before our readers some large specimens illustrating the powers of the Portrait-Euryscope. We publish an illustration obtained with a No. 4, one of the short-focus series considerably trimmed. The specimens produced with the larger sizes of the new comer which we have seen, are distinguished by uncommon brilliancy; definition which is delightful in clearness and delicacy; remarkable depth of focus; faithful perspective which shows face and figure in true proportion, as viewed from an artist's standpoint, and not the slightest diminution of these important qualities at the extreme margin of the pictures.

Our illustration proper now claims its share of attention. The fair model is a young lady recently graduated from the School of Expression, at Boston, and for the occasion personated the part of (was costumed as) Brunhild, which has been made familiar to the theatre-going public by the famous tragedienne Fanny Janauschek.

Brunhild, the daughter of the god Wotan, dwells in Iceland, engaging in manly sports, and learning to use the sword, spear, and battle-axe with the skill of a veteran warrior. Love has never filled her virgin bosom until she beholds Siegfried, whose victory over the dragon has rendered him the hero of the land. Though she loves the dragon-slayer passionately, she becomes by trickery the wife of Günther, whose sister Criemhilde marries Siegfried. Brunhild soon discovers the means that were adopted to wed her to Günther, and for days she lies on her couch refusing food and drink. Then she comes from out her chamber's stillness to meet Günther. With anger, fierce, but half-suppressed, she checks his explanations of his own and Siegfried's conduct, and demands

the hero's death. "*And by the oath thou at the altar sworst, in pledge to me, thou wilt not dare refuse.*" He recoils from the thought, but she galls him with the tale of her love for Siegfried, scorning him for the means by which he won her. By her indomitable will she induces her husband to consent to the death of Siegfried. But when she hears that the assassin Hagen had successfully performed the bloody deed, remorse overtakes her, and she drags herself to the lifeless body of Siegfried, where with a dagger she ends her own life. The scene presented to our readers is where Brunhild, aided by all the arts known to woman, pleads for the death of Siegfried.

Thus, our picture illustrates the capabilities of the Portrait-Euryscope, as already explained. Mr. D. B. Vickery, of Haverhill, Massachusetts, the artist, has used accessories and back-grounds in which architectural lines predominated. We are aware that in the exercise of absolute taste in composition he was somewhat restricted, although the surroundings of Brunhild may be regarded as sufficiently appropriate, and not liable to offend a refined taste for classic beauty. As already stated, Mr. Vickery employed a No. 4 Portrait-Euryscope, with a medium sized diaphragm, exposing the plates one second, the day being cloudy.

The cards were made for our purpose specially by Messrs. A. M. Collins Mfg. Co., and are beautiful in design.

The prints were made by Messrs. Roberts & Fellows, Philadelphia, on the N. P. A. paper, imported by Messrs. E. & H. T. Anthony & Co., 591 Broadway, N. Y.

Our prints, of late, deserve more than a passing notice. We do not see how any silver prints could run better or any paper work more uniformly in hot weather than the famed N. P. A.

Messrs. B. French & Co., Boston, are the well known agents for all the Voigtlander lenses.

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### THE ROLL OF HONOR.

THE AUTHORITIES QUOTED IN WILSON'S  
QUARTER CENTURY OF PHOTOGRAPHY.

A plain spoken and pushing stockdealer in Chicago writes us of his surprise and

agreeable disappointment when, upon examining our new work, he found it was not "a lot of chestnuts."

Lest there be others who are indulging his early impressions because we announce that the *Quarter Century* contains the best things collated during our twenty-five years activity in the photographic art, we add below a list of the able photo writers whose practical words appear in the newest and best handbook of our art.

It is true, what they have said has been much boiled down and shaped into the form of an ideal text-book, yet there these good words are—and good for all time too.

- |                           |                      |                      |                       |
|---------------------------|----------------------|----------------------|-----------------------|
| Abney, W. De B.           | Clark, Forester.     | Gauze, J. Ezra.      | Long, E.              |
| Adams, Charlotte.         | Coddington, G. W.    | Geldmacher, F. W.    | Longfellow, H. W.     |
| Adams, W. I. L.           | Cooper, David.       | Gihon, John L.       | Luckhardt, F.         |
| Albert, Eugene.           | Cormany, M. L.       | Glines, W. B.        | Macbeth, Norman.      |
| Andra, M.                 | Courtier, E.         | Gorcoix, Capt.       | MacNichol, William.   |
| Andre, E.                 | Cramer, G.           | Green, Arthur.       | Magee, James F.       |
| Anthony & Co., E. & H. T. | Crooke, William.     | Griswold, M. M.      | Mallman H.            |
| Archiv Photog.            | Croughton, G. H.     | Hall, B. F.          | Manville, W. A.       |
| Ashman, W. M.             | Dallmeyer, J. H.     | Harrison, W. H.      | Marshall, A.          |
| Bachrach, D., Jr.         | Daniel, H. A. H.     | Hart, William.       | Mason, J. S.          |
| Baker, W. J.              | Davanne, A.          | Hanson, W.           | Mason, S. Rufus.      |
| Balagny, G.               | Dean, C. W.          | Hasselberg, Herr.    | McCormick, C. A.      |
| Balman, James.            | Densmore, Jay.       | Hearn, Charles W.    | McIntire, H. M.       |
| Baratti, Ottavio.         | Dessodieux, M.       | Henry, Mons.         | "Meisenbach."         |
| Bardwell, Jex.            | "Dexter."            | Hepworth, T. C.      | Monckhoven, D. Von    |
| Beach, F. C.              | Doane, E.            | Hermagis, J. Fleury. | Monroe, G. H.         |
| Beechy, St. Vincent.      | Douglass, Ronald.    | Hickox, R. A.        | Moore Brothers.       |
| Bell, William.            | Duncan, David.       | Hill, C. Walton.     | Moran, John.          |
| Bendann, Daniel.          | Dunmore, Edward.     | Holyoake, W. R.      | Morrison, R.          |
| Benecke, R.               | Dwight, M. L.        | Horgan, S. H.        | Morton, Henry.        |
| Bettini, A.               | Eastman, George.     | Hough, E. K.         | Motes, C. W.          |
| Bigelow, L. G.            | Eder, J. M.          | Hull, Charles Wager. | Mottu, P. A.          |
| Blake, John M.            | Edmondson, G. W.     | Hunt, O. W.          | Mullen, James.        |
| Blanchard, Val.           | Edwards, B. J.       | Ince & Addenbrook.   | Nadar, Paul.          |
| Bode, W.                  | Ehinger, Mrs. Clyde. | Inglis, James.       | Newton H. J.          |
| Boivin, Ernest.           | Ellerbeck, J. H. F.  | Ives, F. E.          | Nicol, John.          |
| Bothamley, C. H.          | Ellinger, J. O.      | Jacobsen, E.         | Nisbet, Hume.         |
| Brebner, Hugh.            | Emerson, P. H.       | Janeway, Dr. J. H.   | Noss, H.              |
| Brit. Jour. of Photog.    | England, William.    | Jastrzembsky, M.     | Obernetter, J. B.     |
| Brooks, William R.        | Ennis George.        | Johnson, J. R.       | O'Madden, Chevalier.  |
| Brown, Henry W.           | Eskil, J. J.         | Johnston, H. M.      | Ormsby, E. D.         |
| Brown, M. P.              | Evans, Charles.      | Joly, M. E.          | Osborne, J. W.        |
| Browne, John C.           | Fennemore, G. H.     | Kent, J. H.          | Paris Moniteur.       |
| Burnet, John.             | Fisch, A.            | Kibbe, W. H.         | Parsons, S. H.        |
| Burrit, Joseph C.         | Foss, E. J.          | Kilburn, B. W.       | Passavant, S. C.      |
| Burton, W. K.             | Foxlee, G. W.        | Kimball, H. A.       | Pearsall, G. F. E.    |
| Butterfield, J. C.        | French, C. M.        | King, Joseph W.      | Pickering, W. H.      |
| Camera, The.              | French, Wilfred A.   | Klauser, Karl.       | Pile, W. H.           |
| Carbutt, J.               | Frey, Emil.          | Kleary, C.           | Piper, Henry.         |
| Cassan, M.                | Friedrich, Franz.    | Klein, M.            | Pizzighelli & Hübl.   |
| Chandler, W. D.           | Fry, Samuel.         | Kniebel, Franz.      | Platt, S. L.          |
| Chevreul.                 | Garrett, Elwood.     | Knowlton, Charles.   | Photo-Archiv.         |
| Cheneviere, Robert.       | Garrett, C. Alfred.  | Koehler, S. R.       | Poitevin, M.          |
| Chute, R. J.              |                      | Konarzewski.         | Powell, George May.   |
|                           |                      | Krauss, Charles.     | Powell, M.            |
|                           |                      | Krause, Herr.        | Pray, Thomas, Jr.     |
|                           |                      | Kurtz, Henry.        | Pretsch, Max.         |
|                           |                      | Kurtz, William.      | Prumm, H.             |
|                           |                      | Landy, James.        | Public Opinion.       |
|                           |                      | Latchmore, Thomas,   |                       |
|                           |                      | Laws, M.             | Rawson, D. W. S.      |
|                           |                      | Leake, J. C.         | Reutlinger, C.        |
|                           |                      | Lea, M. Carey.       | Reynolds, Sir Joshua. |
|                           |                      | Leas, George W.      | Richardson, C. F.     |
|                           |                      | Libby, E. P.         | Robbins, Frank.       |
|                           |                      | Liebert, M.          | Robinson, H. P.       |
|                           |                      | Liesegang, E.        | Robinson, S. M.       |
|                           |                      | Linn, R. M.          | Rocher, H.            |
|                           |                      | Lister, Henry.       | Roche, T. C.          |
|                           |                      | Loescher & Petsch.   | Rood, F. M.           |
|                           |                      | Loescher, P.         | Root, Samuel.         |
|                           |                      | Londe, Albert.       | Rose, P. H.           |

Rothe, Herr.  
 Ruskin, John.  
 Salomon, Adam.  
 Saunders, Irving.  
 Schell, George W.  
 Schnitzer, C. C.  
 Scholten, John A.  
 Schoonmaker, H.  
 Shumann, V.  
 Scofield, C. H.  
 Scolik, C.  
 Scotfor., J. H.  
 Seavey, L. W.  
 Sedgwick, H. M.  
 Sellstedt, L. G.  
 Seybold, H. K.  
 Shakespeare.  
 Shepard, Thomas P.  
 Sherman, W. H.  
 Simon, M. C.  
 Simpson, G. W.  
 Smithells, Edward.  
 Smith, D. Edson.  
 Smith, J. Edward.  
 Smith, W. G.  
 Smith, Xanthus.  
 Snell, William.  
 Southworth, A. S.  
 Spencer, F. M.  
 Spencer, F. W.  
 Spring, George.  
 Sperry, George.  
 Spicer, Alex.  
 Spiller, John.  
 Spitaler, Herr.  
 Squibb, Edward L.  
 Stebbins, E.  
 Sternberg, L.  
 Stevens, C. N.  
 Stillman, W. J.  
 Stoddard, S. R.  
 Stolze, E.  
 Stone, London.  
 Stuart, John.  
 Sturenberg, C.  
 Sutton, Thomas.  
 Taylor, Rev. A. A. E.  
 Taylor, William C.  
 Tissandier, G.  
 Towler, John.  
 Townsend, David.  
 Thiebault, M.  
 Thomas, Frank.  
 Trask, A. K. P.  
 Turnbull, A. E.  
 Van Weike, Roland.  
 Vercoe, H. T.  
 Verres, Herr.  
 Vevers, C. C.  
 Vidal, Leon.  
 Vogel, H. W.  
 Waldack, Charles.  
 Walker, W. H.  
 Wallace, George W.  
 Wall, A. H.  
 Warnerke, L.  
 Webster, I. B.  
 Weiss, R. G.  
 Wellington, J. B. B.  
 Wells, T. M.  
 White, George W.  
 Whitney, L. M.  
 Wight, M.  
 Wilde, W. F.  
 Wilkinson, W. T.  
 Willis, W.  
 Wilson, F. H.  
 Wilson, W.  
 Wise, G. W.  
 Woodbury, W. B.  
 Woodman, Clarence.  
 Wratten & Wainwright.  
 Wright, William, R.  
 Zay, F. B.  
 Zentmayer, Joseph.

## PHOTOGRAPHERS CALLED TO A CONVENTION.

THE fact that American photographers meet once a year in a representative convention, called together under the organization of the principal Photographic Association of the United States, has served to give some of the fraternity over here the desire to see something of the sort in Great Britain, and last year some gentlemen called together a Convention in Derby, which was attended by about seventy members. The great mistake upon this occasion was not securing the coöperation and affiliation of the existing photographic societies, as instead of doing

this the constructors of the scheme called themselves by the somewhat high sounding title of "The Photographic Convention of the United Kingdom," and invited individuals to subscribe five shillings each, and by that act to become members. The result was, that a meeting was held at Derby in 1886, with a membership of about seventy, and considering the nature of the basis of the organization, this result must be considered encouraging.

In making arrangements for the Convention of this year, the promoters of the scheme appear to have recognized their former error in merely trying to gather individual adherents around themselves, and they consequently endeavored to enlist the coöperation of the established Photographic Societies, and sent to each Society a circular worded as follows:

With a view of making the Convention thoroughly representative, I shall be glad if your President, or one of your members nominated for the purpose, will represent your Society at the committee meeting to be held during the week of Convention.

This step, though excellent in a fashion, came a little too late to be altogether successful, as the Societies applied to, evidently felt that a combination of the old and representative bodies should have been taken at an earlier stage; indeed, that it should have taken place before the Convention had constituted itself, rather than after.

The Convention met at Glasgow on Monday last, in much larger force than in the Derby meeting of last year, our correspondent estimating the number of members at "about 200."

From a circular before us we find that the Council now consists of twenty-four, and although it contains a few well known men, it is not in any way so constituted as to be representative of photography in the United Kingdom; Ireland, indeed, appears to be totally unrepresented. In addition to this Council of twenty-four, we find there is a Local Committee of no less than seventy-one, but as four members of this are also members of the Council, it may be considered to consist of sixty-seven, the total executive thus amounting to ninety-one.

As regards the extent of the membership

roll, our inquiries of the Secretary did not elicit anything more definite than "about 200," or, let us put it roughly, about half executive and about half ordinary members.

We have great sympathy with the object of the Convention, and with the really hard and patient work which has been done by the promoters of the organization, but we are of opinion that before the title "*Photographic Convention of the United Kingdom*" is in any sense deserved, a further step will have to be taken in the direction of securing the coöperation of the photographic societies of the United Kingdom. To make the Convention a really representative gathering, the Council should be appointed by the fraternity at large, a condition of things which might be realized by arranging for each photographic society in the United Kingdom to contribute one councillor or more, according to its membership roll. A council elected at the meeting of the Convention is a council elected by the few who have leisure and inclination to go holiday-making, combined with a disproportionate local element.

The Convention which met at Glasgow this week must not be confounded with the annual conference and convention organized by the Camera Club, and which held such a notably successful meeting in the theatre of the Society of Arts during February last. At this meeting about three hundred and fifty were present, and the business was managed by a sub-committee of seven.

Our correspondent sends us the following particulars as to the Glasgow meeting:

An excellent suite of rooms in the Institute of the Fine Arts, 175 Sauchiehall Street, were secured for the joint purposes of exhibition and meeting; and many of the visitors took up their quarters at Cranston's "Waverly Hotel," which stands just opposite. The Exhibition was opened on Monday afternoon, and was noticed for the capital hanging of the pictures—overcrowding being avoided. Local work was, naturally, well to the front; and Messrs. Macnab, G. Mason Turnbull, T. and R. Annan, T. N. Armstrong, J. Stuart, J. C. Oliver, W. S. Anderson, J. Rennie, W. Goodwin, A. Watson, R. Dalglish, J. Parker, F. M.

Gowan, W. G. Fordyce, Alex. Brothers, and others were strongly represented. There was also capital work by Mathewson (Dundee), Dr. Bell, H. Bolden, W. Glen (Derby), Jas. Paton (Greenock), W. Crook (Edinburgh, including two fine photographs taken direct on Fry's 24 x 20 plates), R. Keene (Derby—Platinotype), J. C. Cox (Lochee—twenty capital figure studies), transparencies and prints by the Derwent Dry Plate Co., a splendid series of enlargements by S. Fry & Co., and by Morgan & Kidd, W. M. Martin (Dundee), R. B. M. Stewart, A. Macdonald (Arran), J. G. Tunny (enamels), etc. Many frames, however, had no names upon them.

In apparatus, the two great Glasgow houses of G. Mason & Co., and McGhie & Bolton, made a splendid show, a 24 x 20 camera by G. Mason forming a prominent object. J. F. Shew & Co., the Albion Albumenizing Co., J. Place, and J. Pumphrey (Birmingham), Ross & Co. (case illustrating the "History of a Photographic Lens"), and many others were well represented. W. J. Harrison exhibited a Scovill Company's camera fitted with Eastman roll-holder and Beck's lens with iris diaphragm, altogether an enviable fit-out.

The Lord Provost of Glasgow (Sir Jas. King) had kindly consented to preside at the Monday evening meeting, but being summoned to London to attend the ceremony of laying the first stone of the Imperial Institute, his place was filled by Bailie Crawford, who welcomed the visitors to Glasgow in a most genial and incisive speech. J. T. Taylor announced that eighteen papers on a variety of subjects had already been sent in to be read at the evening meetings of the Convention; after which a vote of thanks to the Chairman was carried by acclamation. After a short interval, spent in examining the exhibits, Andrew Pringle passed a series of slides (prepared by himself and by Messrs. Armstrong, Wellington, and Reid) through the optical lantern, the meeting, which had been attended by about 120 individuals, breaking up shortly after ten o'clock.

The following papers were read, and will be found in another place: "The Photographic Uses of Nitrite of Potassium," by

H. H. O'Farrell; "Concerning Stereoscopic Pictures," by W. M. Ashman; "Experimenting," by H. J. Gifford; "Intensification," by W. B. Bolton; "Finders and Focussers," by Lyonel Clark, C.E.; "Photography from One Point of View," by Edward Dunmore.—*Photo. News.*

### MAYALL'S COLORED PHOTOGRAPHS.

ANNEXED is the method of coloring photographs which has recently given rise to so much discussion and misapprehension. The negative is taken in the ordinary way—either by daylight or electric light; and from it positive prints can be obtained on different materials, such as porcelain, paper, etc.

For paper, a weak solution of gelatine and lactate of iron in about the following proportions is used, viz., 2 grains of fish-glue or isinglass to one-sixteenth of a grain of lactate of iron in 1 ounce of water, the whole being boiled, and subsequently filtered. The paper, after having been immersed for about three minutes in the above solution, is dried and smoothed; which may be done by placing it between blotting-paper, and submitting it to a slight pressure. Then float the paper thus prepared for about two minutes in a bath composed as follows: viz., to about 1 ounce of albumen (preferably that taken from fresh eggs) 4 grains of chloride of sodium, half a grain of bromide of potassium, 2 minims of glacial acetic acid, and 1 drop of a concentrated solution of some derivative of silex, or of hydrocarbon, of which salicylic acid is very suitable; the whole must be beaten up into a frothy mass, and allowed to settle for about twelve hours. Any tints may be given to this mass by adding the desired color dissolved in a saturated alcoholic solution in the proportions of about 1 minim of alcoholic solution to 4 ounces of the albumen solution above described, and 1 minim of meconin, or its derivatives; the whole is then beaten up and allowed to settle. After floating, the paper is dried by slow heat and ironed on the back to make it perfectly dry and smooth. A bath is prepared of nitrate of silver and nitrate of soda and free ammo-

nia in the proportions of about 1 ounce of water to 40 grains of nitrate of silver, 10 grains of nitrate of soda, and 3 minims of free ammonia, and, when pliability of the paper is desirable, 5 drops of glycerine per ounce of bath solution are added. The paper is floated face downward on this bath for about two minutes, and then dried in a dark room, after which it is fumigated in an atmosphere of ammonia for from three to five minutes, and is then ready for printing upon in the ordinary way. The prints, after fixing, must be soaked in a weak solution of sulphuric acid to expel any trace of the hyposulphite of soda, and well washed. The printed impression in a moist state is then mounted face uppermost on a piece of glass or skeleton frame, and when dried the desired colors are dabbed on by suitable means and slightly stamped. The dabber found suitable for this purpose is a pad of fine cotton-wool pushed through a glass tube so as to protrude therefrom, and cut square and even at the end. This cotton-wool must either be renewed for each color, or a separate dabber kept for each color. After the colors have been applied, the paper is rendered impervious to moisture by dressing its back and front with some such substance as white wax, or paraffin, or camphor, the print being sufficiently warmed for the purpose of the application of the wax. The colors must be stronger than are required for the final effect. The picture is then sprayed over or subjected to an atmosphere charged with a weak alcoholic solution of salicylic acid or some derivative of silex or hydrocarbon, paraffin, or of any preparation of fluorine dissolved to set the color, and then it is subjected to the action of finely-powdered soluble glass by placing a powdered silicon in a suitably-closed chamber provided with shelves and fitted with bellows so as to blow the silicon powder into a cloud. The colored picture is put on one of the shelves to catch the fine dust of the silicon for a very few seconds, after which it is taken out of the chamber. The picture (face downward) is then laid on a plate of glass coated in the following manner: After having rubbed the glass with a dabber of any suitable material, as a ball of cotton-wool covered with leather charged with

powdered silicon, it is coated with collodion to which is added one drop per ounce of salicylic acid, and when dry recoated with gelatine and salicylic acid in about the proportions of one drop of acid to one ounce of gelatine. After drying, the surface of the print is moistened with some hydrocarbon, such as paraffin or kerosene, to which are added a few drops of salicylic acid in the proportion of about two drops of salicylic acid to the ounce of hydrocarbon, and, when sufficiently moist the picture is well pressed down upon the gelatine surface and allowed to dry in a warm atmosphere, after which it is stripped from the glass, and when mounted on card, porcelain, or other desired material, produces a permanent and finely-colored photographic picture. If it is desired to have a brilliant picture it is necessary that the entire process above described should be conducted without any delay or intermission in the various portions of the process, and in an atmosphere of increasing temperature, as if in the process the print is allowed to become chilled a dull appearance is the result, which dull appearance may, however, be sometimes preferred. For printing on porcelain and such like material, Mr. Mayall coats the material with collodio-chloride of silver, or carbon tissue, or the albumen solution above described, the subsequent treatment being the same as that described for paper. The colors employed are ordinary colors in a dry state ground up with phenic acid, and silicate of potash or kerosene, and silicate of potash in alcohol in about the following proportions: viz., one ounce of dry color to 60 grains of phenic acid, and 20 minims of silicate of potash or 60 grains of kerosene to 20 minims of silicate of potash. In the above manipulation, care must be taken to exclude all organic matters other than what are above described. — *The Camera.*

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### FINDERS AND FOCUSERS.\*

BY LYONEL CLARK, C.E.

COULD one have known Daguerre's thoughts whilst he was sitting with white-

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\* A communication to the Photographic Convention.

washed face before his camera, patiently waiting for the sluggish plate to delineate his features, we should doubtless have found that he was building aerial castles where exposure was reduced to a minimum, and, indeed, we know how hard he and his successor, Dr. Victor, worked in the direction of improving the rapidity of their sensitive plates. In fact, ever since the discovery of photography, experimenters have been striving to improve in this direction, and there are few commercial brands of plates now made but that are too rapid on open subjects for hand exposure, and some form of shutter is a *sine qua non* with all photographers. But, remembering the old adage, although it is an easy thing to get shutters and plates for the most instantaneous kind of work, it is not quite so easy to catch your object. By the time you have focussed and got your back in, slide removed, and shutter set, your subject may be a long way off. In the case of a passing express, the 4.5 problem of Euclid for the tyro amateur, it is easy enough, you can do all that beforehand, and await the arrival of the fiery Pegasus; but all animate or moving objects do not run on rails. but have to be followed and taken at any moment. Even at the Zoo, where the denizens are decidedly limited as to recreation ground, it is a constant enough fact to find, after the plate is developed, that the animal is not in focus, or else his head or tail are wanting. In the case of ships or yachts, how often do we see a good picture spoilt owing to the want of a few feet more bowsprit, or the peak of the topsail. Of course, with any of the ordinary finders, this should not happen, and as yachts are virtually all taken at about the same distance, the focus does not come in as a factor, for a fixed focus and a small stop bring everything sharp. But in the case of animals, where, perhaps, a portrait lens with small depth of focus must be used, and where the subject is well within the focal variation of the lens, this plan does not work.

Some cameras are marked for foci of varying distances, but this is open to many objections. You have first to train yourself to properly judge the distance, and then you have to rapidly change the eye from the finder to the marks and back again, and it

is more by good luck than by skill that you get a successful picture. Men like Mr. Dixon, who make a specialty of animals, have boldly gone in for double cameras and double lenses, and this plan is, without doubt, the most effective; but it is expensive and extremely cumbersome, and quite prohibits its general use, for no one could make a point of carrying about two cameras because he might get some instantaneous work. Some time back I tried using a telescope, and marked off the focal lengths to correspond with similar marks on the baseboard of my camera, but soon dropped it, as I found it very inconvenient, and required two persons to use it properly. Later on I utilized, for the same purpose, that scientific toy called the walking-stick telescope. This, as many of you doubtless know, consists of an objective which is clipped on to the walking-stick and can be slid up and down on it, and a plano-concave eye-piece, also fastened on to the stick, thus forming a Galilean or opera-glass style of telescope, and is really of more or less practical use. I screwed an objective of the same focal length as my lens on to the front of my camera, on the back or sliding portion I fixed an ordinary focussing glass with a piece of ground glass cemented on; subsequently I discarded the ground glass, and substituted a small wire to focus on. This apparatus was adjusted to the camera, and, of course, the two objectives being of the same focal length, when the top one was in focus, the bottom one—that is, the camera proper—was also in focus, and this held good for every position of the object. There was, I believe, nothing new in this. Mr. Traill Taylor described such a focuser at the Conference last year, and Mr. McKellen also made a similar one; and, moreover, I believe it has been described at a much earlier date. The drawback I found was that it only gave you a very small portion of the subject, and you were obliged to have a finder at the same time; and the changing from one to the other I found by no means easy to manage.

Last summer I was rigging up a camera specially to take some puppies and kittens, and had intended rigging up a second camera on top of the first. On working out the designs, I at once saw that by far the simplest

and easiest method was to utilize the ground-glass of the camera proper, since it could not be required at the time of exposure. I simply turned up the screen then until it stood vertically above the top of the camera, and in a plane, of course parallel, to the plane of its usual position. On the front of the camera I raised up an extra front above the existing one, and fitted into it a lens of the same focal length as my objective; this lens was in a sliding tube. I now had the framework of a second camera on top of my first one, and throwing a focussing cloth over the whole, I got an image on my upturned focussing screen. To adjust this, I first focussed very accurately the bottom camera, the screen for this purpose being, of course, turned down on some object. I then, without shifting the camera, turned the screen up, and clamped it there with some brass pieces, and then slid the tube of the upper lens in and out until I got the same object sharply focussed on the screen in its upper position. Now the two cameras, or rather camera and finder, coincide, and, of course, as I rack out the one the other follows; and the foci of the two lenses being equal, whenever an object is sharp on the turned-up screen I know that it is also sharp on the plate with double back below. There is no need to be particular as to the lens used for the finder—even a spectacle lens will do; but this is objectionable where your lens proper is of a longer focal length, as the spectacle glass is totally uncorrected for spherical aberration, and gives a more or less sharp image over a great depth of focus; a single landscape lens, but with the stops removed to give as much light as possible, is, undoubtedly, the best, except you go to the expense of having twin lenses.

Although the focussing-cloth does extremely well as a make-shift, yet in the case of wind something more is required. I have a sort of cardboard body, that folds like one of Ottewill's old collapsing cameras. This is made in the form of a truncated pyramid, it slips with an elastic band over the tube of the finder lens, and so gives the play required; the other end comes over the focussing screen, and projects like a box a little way beyond it, and gives the necessary shade to it, so as to allow the image to be seen.

Many other ways of covering in the finder will, doubtless, present themselves to you—a body like a Chinese lantern would do, or even an old bellows, though somewhat more bulky; for you must remember that it is not at all necessary to keep out all light; it is surprising how much you can see with nothing between the eye and the ground-glass.

As to the manner of retaining the screen in its upright position, or of fixing on a false front, it is impossible to give any strict directions, cameras differ so in construction; but it requires but a small amount of ingenuity to devise some method. I may add that I have for my small cameras, a focussing

eye-piece, which is kept pressed up against the ground glass, being held in position by a spring; this leaves me both hands free to hold the camera and focus, etc., and at the same time permits of my getting, if necessary, a most absolute focus. I have found this little arrangement of focusser and finder, which I described and showed at a meeting of the Camera Club last October, of the very greatest use and benefit. I always carry it about with me, for it at least has the merit of neither adding anything to the bulk or weight of your kit, although, at the same time, you have all the advantages of a double camera.

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## Editor's Table.

PICTURES RECEIVED.—The work of the second generation begins to come along and makes our *Quarter Century* all the more real. A fine example is from the young son of our old-time subscriber Mr. E. M. VAN AKEN, Elmira, N. Y. It is of a pretty little Miss posed gracefully with carefully arranged accessories and nicely lighted by Mr. CHAS. VAN AKEN. The retouching is also judiciously done, and the entire picture is very creditable. With art born in and ambition alert, Mr. VAN AKEN is sure to have success. We like to hear from the sons of the craft and to see their work. Mr. E. E. ROESSLER, Carthage, Mo., favors us with some very lovely pictures of subjects well chosen, artistically posed and lighted and very carefully finished. There is a soft gradation of light pervading the faces, which is always the bight of our ambition to secure in a picture, and surely Mr. ROESSLER knows how to secure it over and over again. He is a reader, an attendant upon the conventions, and *always learning*. Hence his good work.

MR. J. A. ULMAN, Baltimore, Md., recently returned from a hasty Pacific Coast trip, has sent us a series of lovely pictures made on Pas-savant plates, of marine views, architecture, etc. The gems are a street view in "China Town" San Francisco, and of a sunrise at Port Harford. The former is like a scene in Canton—the latter a bit of the sea with the shadowed hills on the distant shore, the half disk of the sun just ap-

pearing over the lofty outline. It is an inspiration hit.

MR. C. BUTTERWORTH, Wilmington, O., whose La Magdalen appeared recently as "our picture," has sent us three more examples of his work 11 x 14 size. One is called "Ruth," and one "Morning," and the last "Night." They are all admirable in technique and show studious conception with careful carrying out. A thorough knowledge of art principles is needed to produce such pictures as this with entire success. There are *rules*, and unless they are observed, *good* pictures will not result.

MR. J. M. ADAMS, Irwin, Pa., orders *Quarter Century* and a renewal of his subscription to the PHILADELPHIA PHOTOGRAPHER. Of the latter he kindly writes: "And right here allow me to say that I consider your journal the cheapest and at the same time the best scientific work published in the United States."

MR. JOHN CARBUTT has just shipped 200 dozen of his famous plates to Melbourne, Australia, and another lot for use at the Sphinx, Great Pyramids, and cities of Egypt.

W. H. WALMSLEY, Esq., Philadelphia, called upon us recently. He will be at the Convention in person, and states that some lovely things will be shown in competition for the Beck Lens prizes.



· OBITUARY.—We regret to record the death, on July 8th, of Mrs. LETTICE B. FELLOWS, the lovely wife of Mr. CHAS. T. FELLOWS, 1125 Chestnut St., Philadelphia. She was a great sufferer for many months previous to her demise. Even the soft winter air of the Pacific did not recuperate her. She was "pleasant in her life"—gentle, kindly, and beloved by a host of friends, who will not soon be able to replace her in their hearts.

MESSRS. SMITH & PATTISON, Chicago, Ill., assure us that all the photographers are not waiting until Convention week to order supplies, since their large stock-house was never so crowded with orders as now. Night and day are scarcely enough to enable them to attend to all that comes.

Moreover, the improvements in the Duplex burnisher keeps a flow of orders coming, much to the delight of maker and user—and the public.

*Photographic Printing Methods* (No. 22 Scovill's Series) is now ready—much larger than was intended at first. It is a splendid work—thoroughly practical. We send it on receipt of \$1.00.

MR. A. C. AUSTIN, Nashua, N. H., has accomplished the feat of making a splendid photograph of the balloon "City of Nashua" just after it left the earth July 4th. Prof. Rogers, the aeronaut and his companions are easily recognised standing in the car, and the hundreds of spectators below are all "heads up." It is an effective picture. One taken of the "Nashua" just before the ascent is also very good. The first was made at 7 P.M. Three hours were spent in development. Stanley plate; Ortho-Panactinic Lens of C. H. Codman & Co., and Scovill's "Universal" Drop Shutter were used. Mr. AUSTIN should be congratulated on his result.

THE Stamp Picture patent has at last been decided. Mr. H. A. HYATT, of St. Louis, writes us concerning it as follows:

"The Stamp Portrait interference case has finally come to an end, and Mr. HENRY KUHN was granted Letters Patent (which are now in my possession) July 12th, on 'Photographic Stamp Portrait Sheets,' and on 'Photographic Apparatus,' which is the stamp portrait box. It has been a long and expensive fight, but

everything is in good shape, and Mr. KUHN can now protect his rights which he will be likely to do. The number of the Stamp Portrait patent is 366,244, that of the Photographic Apparatus 366,245, and both issued July 12th."

There has been a hard contest in this matter, and we hope Mr. KUHN will now be able to present his invention to the public with advantage to all concerned.

CYCLONE PHOTOGRAPHS.—PROF. SHALER'S article on "The Instability of the Atmosphere," in *Scribner's Magazine* for August, contains reproductions of a number of photographs taken immediately after disastrous tornadoes in the West, which show grades of destruction from centre to circumference of tornadoes, and the explosive effect of air contained in hollow walls. The initial picture of the number is a full page engraving of Mr. JUDD'S cyclone picture previously noticed.

THE ANTHONY FIRE.—In our desire to announce the news promptly, we overstepped the facts in our last issue concerning the fire at the store of Messrs. E. & H. T. ANTHONY & Co. Only a portion of the rear building was destroyed, and only a very small quantity, comparatively, of their immense stock. Everything is going on splendidly now, as will be seen by the following card.

"We are very much pleased at the many letters of sympathy which we have received from our numerous customers and friends, offering their assistance in any way which we might command. As we announced in a former circular, we have resumed business, filling orders, and would say to our friends that there is no way that they can do us more good than by sending along their orders as fast as possible. We can fill all demands with reasonable dispatch, having laid in a new stock from our factories and elsewhere of such goods as were burned."

E. & H. T. ANTHONY & Co.

THE BRITISH NATIONAL CONVENTION.—As will be seen, the early issue of our magazine enables us to give our readers quick news of the Convention held abroad by our British co-workers.

Several of the papers read and editorial reports from our esteemed contemporary the *Photographic News*, appear in our current pages, and must stimulate those who attend upon the Chicago Convention. More to follow.

MR. W. N. JENNINGS, Philadelphia, has favored us with a remarkable lightning picture made at 4 A.M., June 22d. It represents a charge which must have been of great intensity. It took place between two banks of clouds and in a horizontal direction. It is capitably caught. Mr. JENNINGS writes: "About three minutes before this was 'caught' the coping of a chimney directly over my head, and a number of slates on the roof were demolished."

MR. W. J. DUNIHUE Sinclairville, N. Y., is very much interested in photographing the relics of the past found in the Indian Mounds so plenty in our State, and has sent us one of his remarkable successes in the shape of a fine specimen card of aboriginal bones and skulls tastefully arranged. The photograph is capital. We shall refer to this subject soon again as one possibly advantageous to photographers to take interest in.

CATALOGUE of Messrs. E. M. PRINCE & Co., 148 West 4th St., Cincinnati. This handsome royal octavo production of nearly 200 pages is splendidly printed and has the most tasteful cover design we have yet seen. Each side is a picture printed in excellent taste. The text is carefully compiled, abundantly illustrated, and well printed. The first twenty pages or so are devoted to the manufactures of the Blair Camera Co., Boston, with 24 fine illustrations. The whole affair is creditable to all concerned, and quite showy.

MR. G. CRAMER, St. Louis, writes of *Quarter Century* as follows:

Your *Quarter Century in Photography* has arrived. I have looked through its pages and read some items with more attention, so I feel convinced that it treats exhaustively on all photographic subjects, and will serve as well as an instructor to the beginner as a complete historical record to the most experienced disciple of our art.

Few men possess such a gigantic memory as not to forget many valuable items in course of time, and it will prove as pleasant as useful to have your carefully compiled work. It will surely be appreciated by the fraternity.

A MAGNIFICENT 18 x 22 photograph of "Berlin" winning the great race at Niagara Falls July 8th, comes to us from Mr. GEO. BARKER of that city. He writes, "it is from the finest negative I ever made," and it is a wonderful camera creation.

Five trotters heads to, at full speed, almost on a line, with the faces of their jockeys so sharp their anxiety can be seen through the clouds of dust coming up from the course—truly the most spirited group ever taken. The tall winning post in the foreground, the cheering spectators on the other side all help to make up a wonderful picture. An old white horse (probably an ex-racer) with head high up in the air, stands amid the audience apparently as interested as any one there. Altogether it is a remarkable success.

OUR friend Monsieur LEON VIDAL, Editor of *Le Moniteur*, attended the Photographic Exhibition at Florence. He says that France and Germany sent the best things. England had but one exhibitor, the Woodburytype Co. of London. America had but one representative, Mr. EDWARD L. WILSON.

The house of Carvan exhibited a frame containing twenty prints on gelatino-chloride of silver paper, all of different tones, and the *Moniteur* published the formula for each. We hope to give them soon.

THE Chautauqua School of Photography is now under full blast with Prof. CHAS. EHRMANN as principal. Ten lessons are in the course at the low cost of \$3.00. General photography and nearly all special branches are included.

The schoolroom is located in the new art centre, and Prof. EHRMANN writes, "Its prospects are highly flattering, as pupils awaited my arrival."

A circular giving full particulars may be had of CHAS. WAGER HULL, Supt., Chautauqua, N. Y.

Wilson's *Photographics* (Chautauqua edition) is the *text book* of the school.

MR. ODIN R. FRITZ has returned from South America and opened a studio in Boston. Welcome home.

A FIRST CLASS silver medal was awarded EDWARD L. WILSON at the Italian Exposition at Florence for his photographic publications, including the PHILADELPHIA PHOTOGRAPHER from January, 1864, to May, 1887. Notice of the award has just been received from our old contemporary Col. OTTAVIO BARATTI, who writes: "I am so glad that I wish I could come personally to give you the news."





Photo-Gravure by The Photo-Gravure Co., N. Y.

FINAL TABLEAU IN "TAMING OF THE SUREW," AS PRODUCED AT DALY'S THEATRE, N. Y.

PHOTOGRAPHED BY ELECTRIC LIGHT BY THE PHOTO-GRAVURE CO., N. Y.

THE  
**Philadelphia Photographer.**

EDITED BY EDWARD L. WILSON.

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No. 304.

**PERTAINING TO THE**



THE Eighth Annual Convention of the Photographers' Association of America was opened at 10.30 A. M., Tuesday, August 8, 1887, at the Exposition Building, in Chicago; G. Cramer, Esq., President, in the chair. There were less than two hundred members present, but they made up in enthusiasm what was wanting in numbers. The attractions of the Exhibition were too tempting, and considerably reduced the attendance.

President Cramer introduced the Hon. Judge Bradwell, of Chicago, an enthusiastic amateur photographer, who made an address of welcome. In eloquent terms the distinguished jurist eulogized Chicago and photography, two of the greatest discoveries of the age, and declared that there was no hypo strong enough to fix the progress, or retarder invented to restrain the growth of either. Surely everyone there who listened to the utterances of the warm-hearted speaker, felt welcome, and the applause which followed must have made Judge Bradwell feel that his ringing words were welcome.

President Cramer responded in a neat and characteristic address, which was followed by long and loud applause. He then de-

clared the Eighth Annual Convention of the Photographers' Association of America "open for business."

The calling of the roll was, on motion, dispensed with.

The reading of the minutes of the last meeting was likewise dispensed with, and reference had to the complete reports in the magazines.

Mr. James Landy, ex-President, read the report of the Executive Committee, giving such a brief of the acts of that body as it is desirable to be made public.

Secretary Bellsmith read the report of the Committee on the Revision of the Constitution and By-Laws. It was ordered to be printed and distributed with copies of the old rendering, and further action postponed until the next meeting.

The best literary effort of the session was the reading, by himself, of Dr. John Nicol's "Report of the Committee on the Progress of Photography." It was an eloquent tribute to the growth of our art, and will be read with profit and interest, though the reprint (which will appear in our next issue) will not convey the gestures and manner which accompanied its excellent reading by our learned veteran colleague.

He was rewarded by good listening and loud applause.

The Secretary read, for Mr. G. Gennert, the report of the Committee on Foreign Exhibits, the main points of which we have already published.

Committees were appointed by the President to nominate officers and to propose a place for the next convention and exhibition.

The session was then, on motion, adjourned until 9.30 A. M., August 10th.

## ITEMS.

We have concluded not to delay our current issue for the purpose of including more of the report of the Convention. The attendance assured us that more of our subscribers remained at home than were there, and that our duty to them demanded our issue *on time*.

Moreover, the papers read must, according to the regulations, be revised before we can receive them for press, therefore any delay we might make would be a long one. Our readers will receive as full a report as they will care to read in the coming numbers of our magazine.

As we stood talking of "the good old N. P. A." to one of these, we said, "You have the same smile that you wore twenty odd years ago;" upon which a young photographer, who stood near by, apparently enjoying the conversation of the old gray-beards, said, "Well, I wouldn't give much for an artist who didn't smile." Carry this home.

In the exhibition department, the T. H. Blair Cup attracted the most attention, as being something novel and unique in the way of prize offers. It is a lovely work of art, and will be alluded to further, after the award is made. Thanks to Mr. Blair and Mr. Ives, we are enabled thus early to pre-



The T. H. Blair Cup.

The exhibition, both of photographs and apparatus, was very large, and we shall render a full account of it on a new plan, which we believe will be acceptable and useful to our readers, together with a summing up of useful lessons taught by it.

sent a likeness of it to our readers. As to the present happy holder and his work, more anon.

Our plan of issue enables us to conclude our report of the British Convention in this issue.

## A PORTABLE DISTILLERY.

BY C. C. VEVERS,  
Horsforth, Leeds, England.

THE necessity of using distilled water for many photographic solutions, the difficulty met with by country photographers of procuring water of guaranteed purity, and the high price and great bulk of the ordinary form of "worm" still, led me to devise the still I am about to describe, and which has now been on the English market for some sixteen or eighteen months, and has answered its purpose remarkably well. The idea originated from the apparatus employed in Ireland for the illicit distillation of spirit by the "brogarians," and which consists merely of an old stew-pan with inverted lid and a long clay (or "straw") pipe passing through a hole in the side of the pan.

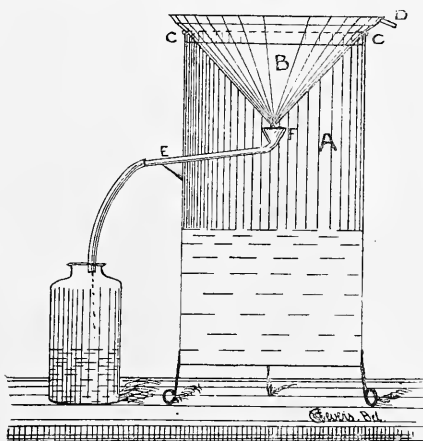
It possesses the following advantages over the ordinary still: its cost is less than half the usual price, it is extremely portable, goes into a fifth of the room demanded by a "worm" still, cannot burst, is very rapid in action, and is very simple to manipulate. The annexed illustration shows a section of the apparatus, which consists of a cylinder,

A convenient size, and one most used here, is made to distil about a gallon of water at each operation. The extreme height of such a machine, including the legs, is but eighteen inches, and the width eight inches. The still may be constructed throughout of stout tin, and any tinner will be able to make one from the accompanying dimensions and diagram for a couple of dollars or less. The cylinder body, A, should measure 13 inches in height and 7 inches in diameter; for this, including seam, a sheet of tin 13 x 23½ inches will be required. The bottom may be of tin, but preferably of copper—indeed the whole machine may be made of copper if preferred. The conical lid, B, must measure about 8½ inches in diameter and 5 inches in height from base to apex; this lid must be provided with a flange, C C, to fit securely inside the cylinder, after the manner of an ordinary pan lid, and a tube, D, a couple of inches long, near the top of the cone. About five inches from the top of the body a tube, E, about ten inches long, is passed through, terminating at the inside in a small funnel, F, exactly under the tip of the cone; the other end projects about three inches at the outside of the cylinder. The three legs, made of strap or rod iron, should raise the machine about four inches from the ground, and are simply soldered to the sides of the cylinder.

To use the apparatus, pour a quantity of common tap water into the cylinder, fix on the cone lid, and place the apparatus over a gas stove or kerosene lamp, near the water supply. By means of an India-rubber tube conduct a gentle stream of cold water into the cone, allowing the overflow to escape through the tube D.

When the water boils, the steam rises and settles on the cone lid, where it is condensed by the cold water outside (which acts as the refrigerator); it then runs down into the funnel and tube, whence it passes into a bottle or other vessel placed for that purpose underneath the outlet. This is the distilled or purified water.

THE probability is that the P. A. of A. conventions and exhibitions will be held less frequently hereafter.



over which fits a conical lid; a tube passes through the side of the cylinder, and terminates in a small funnel in the centre of the cylinder and exactly under the tip or apex of the inverted cone; it stands on three iron legs, so that it may be conveniently placed over a gas or oil stove.

## PHOTOGRAPHY FROM ONE POINT OF VIEW.\*

BY EDWARD DUNMORE.

It is usually the case when allusion is made to photography to speak of it in its dual name as an art-science. Now, for the purposes of this paper, we will ignore the science definition, retaining only the art, thus looking on the scientific side of the matter very much in the same way as a painter or engraver looks on his colors and appliances. I am somewhat doubtful if, by thus invariably linking together of art and science in name, we have not produced a bad effect on photography as an art. Whether or no it has had considerable influence in keeping its artistic qualities suppressed I am not prepared to say. At any rate, photographs are, and always have been, looked upon by many as merely mechanical productions, incapable of expressing a thought, suitable only for producing literally just the matter-of-fact subjects that may be presented to the lens. This is, in my opinion, undoubtedly an erroneous idea. That the photographer has, if he be clever in his profession, the power of imbuing his work with his own individuality in a very marked manner, there is not the slightest doubt. Who could fail to see the man in the works of Rejlander, Robinson, Hubbard, Diston, and others? This fact is alone sufficient to prove that a camera and lens, skilfully used, is something more than a mere mechanical copying machine. We see by actual work that *picture-making* by photography is not only possible, but has been actually accomplished. I speak here in the past tense, by reason of having in my mind the photographs that impressed me most as *pictures*, and which, I have no doubt, many here will associate with the names of the artists I have enumerated. Photography is not easy, by any means, to work as a *picture-making* process. The ease with which an image is obtained is illusory, pictures and images not being synonymous or interchangeable terms. It reminds one of learn-

ing the German language, which, at first sight, has many of the words looking so very like English, that we jump to the conclusion its acquirement is very easy, and not until we have dipped into it we find out our mistake, and that the apparent ease is but delusive. The gay and airy manner with which we thought of mastering it is soon dissipated, instead of which we are involved in a struggle with words that is a formidable and unexpected task to the greater portion of those who make the attempt. It is so very much more easy to blame the process when we fail in our attempt at picture-making than to use it. It is no reason, because there are undoubted difficulties in the way, that we should fall back on that very poor excuse for not making good pictures. Certainly not. It has been satisfactorily proved that pictures in every sense of the term can be made by it, and, by patience and perseverance, the difficulties must be overcome; the more of them, the greater the victory. The well-worn aphorism that "the bad workman blames his tools" is especially applicable to photographers and photography. We know the tools are generally good, and it is our own fault if we do not make good use of them. I sometimes think they may be too good; and when we see such a display of French polish and ornamental brass work, and the very, very small results, it makes one think perhaps if there were less thought for the apparatus and more for the picture it would not be a bad thing.

It is very difficult to satisfactorily define "art," so general is the application of the word in season and out of season. If a tradesman gets particularly ugly patterns in goods, they are dubbed "art" productions. The elasticity of the term meets all requirements, from a picture to a funeral. So much, then, for the application of the term "art," upon which I will not further enlarge. Then we get "fine art," even a more debateable term than the other, but not quite so universal in its application. It is, however, decidedly more provocative of wordy conflicts. As to the precise meaning of the term opinions differ; our purpose will be served if we define it as anything beautiful of a more decorative than useful

\* A communication to the Photographic Convention.



nature, under which head a good artistic photograph may be fairly classed. A photographic picture, then, is an application of the process of photography to represent nature in conformance with the rules that masters in the art of painting and draughtsmanship have laid down as applicable to their particular branches, especially in composition and chiaroscuro. For the present, at any rate, laws relating to the treatment of color do not particularly concern us, except when color takes the place of light and shade, and has to be considered in that connection.

Artistic photographic pictures may be classed under three heads: land or seascapes, *genre*, and still life. Photographs may all be fairly included under one or all of these headings. The landscape into which figures are introduced, if the figures should be so composed as to tell some tale by which the interest will be fairly divided between figure and landscape, has given rise to a variety of opinion as under which head such pictures should be classed. A compromise has been made by designating them as "landscapes with figures," a style which Birket Foster's water-colors has so admirably exemplified. In these productions we have action and interest in the arrangement of the figures, yet without destroying that of the landscape, which, by its freshness and suitability, claims almost equal attention. In the composition of pictures of this kind, to which undoubtedly photography lends itself, the proportionate size of the figure to the landscape entirely decides the class to which it shall belong. If figures are introduced in the foregrounds, and treated in an important manner, we should scarcely call that picture a landscape; but if placed in or beyond the middle distance, they become subsidiary to the landscape, and the picture may be fairly called a landscape with figures, or the figures may be dropped in the title altogether. There are few, if any, landscapes the interest in which is not increased by the addition of figures. Particular attention should, therefore, be given to their position and arrangement, for awkwardly posed figures in the wrong place will ruin any landscape, however beautiful. The fore-

ground in all landscapes should receive careful attention, for upon this part of the picture much of the general effect of the work depends: it being close to the eye, and upon a larger scale than the rest, at once challenges attention. Its arrangement and detail should therefore be most carefully looked to. Many hold, I cannot help thinking, very erroneous ideas as to what constitutes a picture, a "good photograph" being considered synonymous with a "good picture," when, to my idea, they are as far apart as the two poles. However, this is not a suitable opportunity to enter into a long argument as to what constitutes a picture; suffice it to give a few examples of what do not; *e. g.*, a photograph of beautiful clouds, although pleasant to look upon, scarcely constitutes a picture in itself, but add the merest strip of landscape that has pictorial interest, and it at once becomes one. A picture must be a combination of several things, each of interest in itself, otherwise it remains a mere photograph; it may be an excellent representation of the object, but without any claims to pictorial honor. This is a rock on which many get stranded, having the idea that a good photograph of any particular object, no matter what it is, is of necessity a good picture. The sooner this idea is exploded the better for everybody.

The more skilful the composition, and the better the judgment shown in lighting, the more a work of art a photograph becomes. In these two directions photographers should especially try to improve themselves. Their appliances may be more difficult to work with than those of the painter to obtain results of an equivalent pictorial value, but difficulty should scarcely be an excuse for indifferent work. I would therefore urge the study of art in its various phases by all who desire to produce more than mere photographs; it will not be time thrown away. Can any one suppose any accomplished painter made grand pictures as soon as he knew how to manipulate colors? And yet many photographers expect to do so directly they have acquired sufficient skill to make a negative. The idea is absurd. Years of study and practice, and many disappointments, must necessarily be

experienced before a clever and finished work can be exhibited for public criticism. Why, then, should the photographer be an exception to the rule, and why should one who has really greater difficulties to contend with imagine he can make a picture (except by accidents, which in all probability can never be repeated) than a man who by laborious study has learnt, after many failures, to properly handle brushes and color? The conceit engendered by the ability to make a mere representation of a subject without the most rudimentary knowledge of draughtsmanship encourages the performer to entertain a false estimate of his own skill, a result undoubtedly prejudicial to real progress. True artists will always be in the minority; it is only here and there a man or woman without, perhaps, any decided manipulatory skill will come to the front by reason of their artistic ability. A more slovenly manipulator or more artistic photographer never lived than O. G. Rejlander. No matter how messy and defective his work from a chemical point of view, the picture was there; and, had he lived to enjoy the advantages of photographers of the present day, in all probability good manipulation would have been added to his superlative artistic treatment of subjects to which he turned his attention. With the wet plate of his day a man essentially an artist was woefully cramped and handicapped, for to make a complete success you were compelled to think of the plate. When the whole attention should be centered on the subject, this division of interest was a great drawback. Nobody knew it better than Rejlander. Now, however, we can devote our whole attention to the subject, and in the click of a shutter secure any beautiful effect, if we only know how to look for it and see it when it presents itself. We must see a picture before we can photograph it; if we do not, it is pure accident, and can never in human probability be repeated. This is a reason why a man's skill should not be estimated on the strength of his producing one superlatively good work, for the veriest duffer is sometimes lucky in this respect, and such having received an overwhelming avalanche of commendation is a spoiled photographer for the rest of his days.

The ability to see pictures varies with everybody, and to this we owe the great variety of treatment the same subject will receive at the hands of different photographers. Some are artists intuitively, some by education, and some not artists at all, either intuitively or by education, and never will be. Yet all expect to make pictures. We know they cannot, but it is little use saying so. The few go on and succeed, but the many never get beyond mediocrity. As soon as any one is satisfied with his work it is all up with progress; his ideal standard of perfection is a very low one, soon reached and never exceeded.

In these days of education and opportunity photographers should be amongst the first to take advantage of our art schools, and not rest in snug contentment, fancying they are independent of them because the schools are specially devised for instruction in drawing and painting. The means used may differ, but the aim is picture-making, and rules which govern one process will rightly influence another. The knowledge of art is one of the things to which there is no royal road, and it is only by practice, perseverance, and painstaking, that we can hope to see photography raised to that position that it will be no misnomer to call a fine art. Absolute perfection in things mundane is not to be expected, but our endeavor should be to get as near to it as possible. As a proof of how long photographers will be content to run in a groove until startled out of it, we have only to go back to the time of Adam Salomon; his exhibits were so excellent and so different from anything English photographers had conceived possible. Like a revelation, it could be scarcely credited that by the aid of the well known silver bath and collodion such rich masses of light and shadow could be produced; but they did. Then there was the pose and composition of the pictures; nobody had conceived portraits arranged with such simple grace and so brilliantly lighted without hardness could be made by photography; but they were. The only difference was, the process was directed by a master's hand, that was all. From the time his pictures were exhibited English photographers began to see the tools they worked with

were capable of much more than they had suspected, and a vast improvement in portraiture and artistic management of the picture immediately took place.

With landscape work there is no such thorough revolution likely to take place, for as good pictures were taken years ago as now of the subjects to which photographers were then restricted. The most charming effects of light and shade were reluctantly passed. The prompt exposure at the right moment was well nigh impossible, for by the time the wet plate was ready the effect was gone. Photographers were, in consequence, limited to evenly-lighted views. The uniformity accruing from this cause gave rise to the depreciating term "photographic" when applied to other pictures. Now, however, the rapid dry plates have placed the long wanted power of being ready at a moment's notice in the photographer's hands, and any effect, no matter how transient, may be secured. The abuse of such power by exposing on anything that comes must be avoided, and there is no doubt that when the novelty wears off it will be. We now have a grand chance of making real pictures, such that we scarcely did more than dream of formerly; we have, therefore, a right to expect a corresponding improvement in our work.

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### THE PHOTOGRAPHIC USES OF NITRITE OF POTASSIUM.\*

BY H. H. O'FARRELL.

MR. W. A. GREENE recently exhibited at the Camera Club a specimen of a print which he had taken on bromide paper that had been treated with nitrite of potassium. This is the same paper that is issued with the commercial actinometers, and the possibility of using it for printing out has doubtless suggested itself to many, though I have not seen any specimens other than those exhibited by Mr. Greene. I have lately been making some experiments on the use of nitrite of potassium, both in the paper and in the developer, and having been called on

at very short notice to contribute a paper to the Convention, I think a short description of the results may not be uninteresting to those who are working, or would wish to work, in the same direction, though from the limited time at my disposal, as well as from other causes beyond my control, the experiments are far from complete.

The method I adopted was to make up a ten per cent. solution of nitrite and soak the paper thoroughly, leaving it immersed for ten minutes or a quarter of an hour, and then allow it to dry slowly. The paper thus treated behaved in the ordinary way that the actinometer papers behaved, toning to a grayish blue, which deepened afterward into indigo. By placing the paper between the leaves of a book, and drawing out a portion every five seconds, I found that in strong sunlight the paper attained its maximum density in twenty-five seconds, and that beyond that period no perceptible change occurred.

A portion of the paper, however, which I treated somewhat differently, behaved in a different way. Instead of turning a grayish blue, the paper began with a delicate pink, deepening to a litmus red, and afterward a brown, before taking on the ordinary blue and indigo tones. Having by me a negative of an individual with brown hair, I conceived the idea of taking a print, with the happy result that by arresting the operation at the stage when the flesh tints had acquired sufficient depth, the hair had toned down to the brown stage, and the coat to indigo.

I conceive some use may perhaps be made of these results, not in color photography, but in the more limited area of color portraiture. A paper which gives flesh tints, browns, and indigo blacks, possesses a sufficient range for the portraying of persons other than the ancient Britons, who stained their bodies with woad, or the late Mr. Tittebat Titmouse, whose hair at one period of his existence assumed a pea-green color.

At present, however, there is a difficulty to be overcome which is the same that has hitherto proved a stumbling block to all color photography—the difficulty of fixing the prints by means that will leave intact, and at the same time render stable, the tints

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\* A communication to the Photographic Convention.

obtained. Hyposulphite of soda destroys the colors at once, bringing back the blues to the original pink, and ultimately changing them to a very unpleasant yellowish brown.

Hypo being, therefore, out of question, I next thought of sulphite of soda, which has been recommended by Captain Abney as a fixing agent for albumenized prints. To my great satisfaction, I found that the sulphite had no effect upon the colors, and after leaving the prints for about half an hour I concluded they were fixed. So, indeed, they were in the sense that the free bromide had been removed and the image rendered permanent, but the pinks and browns still remained fugitive, and ultimately deepened in strong light to a blue tint.

I have not yet tried other fixing agents, but hope to do so shortly. At present, however, I see no prospect of being able to render the pink or brown tints permanent.

Nitrite of potassium used in small quantities in the developer (about twenty to fifty minims to the ounce of a ten per cent. solution) appears to have a considerable accelerating influence. I exhibit specimens of prints which have had the same exposure, and were developed with the same developer with and without the addition of nitrite of potassium.

I have also tried the effect of soaking plates in the nitrite solution and exposing in the camera. I obtained on a dull day a faint image of the high lights in five minutes, and a badly-defined picture with thirty-five minutes' exposure. The image was, however, capable of intensification or development by a very weak solution of ferrous oxalate—about one part of iron to twelve of oxalate. The result, however, faded considerably in the fixing both—hyposulphite—but appeared to be capable, after fixing, of intensification with the ordinary ferrous-oxalate developer.

I am afraid this paper is necessarily imperfect and sketchy, but I shall be glad if it leads more experienced experimenters than myself to investigate the phenomena. Two cautions are necessary in using this very hygroscopic salt with plates—to immerse the plate in alum before developing

in order to avoid frilling, and to use the nitrite solution fresh.

### CONCERNING STEREOSCOPIC PICTURES.\*

BY W. M. ASHMAN.

THE renewed interest evinced of late in methods of procuring stereoscopic rotundity in photographic presentments, appears to the writer likely to prove of such beneficial importance to professional workers and dealers in the material used, that reference to the subject will not, I feel sure, be altogether out of place among the topics ranged for profitable discussion at the Convention meetings.

That photographers who depend for sustenance upon their financial successes in the practice of the art have suffered severely from the general depression—and possibly other causes—is now an open secret, and if the signs of recovery are not entirely wanting, they are at any rate a trifle obscure and undecided in their character. The best—or an effective—method of circumventing the machinations of an enemy whose identity is so difficult to trace, is the problem which a good sprinkling of the population (photographic) would like to solve.

Doubtless the section of photographers whose interests have been unintentionally imported into three jottings will be supported by abler exponents than myself. I, therefore, refrain from further remarks in that direction, and pursue the theme which possesses the possibilities of a successful future.

Perhaps some members of the Convention now present have had a large experience in the commercial production of stereoscopic photographs, especially as far back as in the fifties and early part of the sixties, and these gentlemen might possibly add the valuable hints gained in their practical acquaintance with the work to the volume of information disclosed by our good friend Taylor in the last *British Journal Photographic Almanac*; then we may see the stereoscope in every household long before the nineties are

\* A communication to the Photographic Convention.

reached. Of this I feel confident, that if such additions are not made to the knowledge already so freely distributed, then it must be assumed that there is nothing further to be said about the matter.

There is one point which has impressed itself upon the writer rather strongly in connection with the subject of making stereoscopic slides, which, under suitable circumstances, might very probably prove of exceptionable value as a commercial speculation, and that is the photographic representation of family and other groups in natural positions. Successfully achieved, such a style of presenting portraits would certainly be appreciated, and, in all probability, supplant the flat-looking, very-much-thrown-together-and-heaped-up mass of inanimate form sometimes designated a family group likeness. Whether such a dire catastrophe would indeed follow a perfect, or approximately perfect stereo, little matters now, my intention being to direct notice toward a means of interesting the general public, in order that the fraternity may derive some definite advantage.

Believing firmly in the prospect of a demand for group photographs such as those indicated, I should like to trespass on your patience a step further, and intimate the kind of instrument which I think suited for carrying out the suggestion. The ordinary portrait combination, ranging between four and a half and six inches focus, will be found as practicable as any. Although it would be inadvisable to use such a lens at full aperture, the employment of a small diaphragm is not only unnecessary, but positively objectionable if one desire to secure soft, harmonious, well-rounded impressions. Then, again, if complete success is to be attained in this class of work, anything short of a commodious and well-lit studio cannot be relied upon. Properties, many and varied, have to be requisitioned, and the means of properly illuminating the same ought to be under perfect control.

With regard to pairs of lenses for securing two images from different points of view at the same time, I must say that I have never met with two instruments absolutely accurate when paired; there is always something wrong about one of

them, either in focal length or brilliancy of image. This may not be the general experience, however.

With the routine of ordinary manipulation I will not occupy your time, but pass to one other form of slide which can be made exceedingly interesting. That to which I desire to draw attention is the subject of interiors of dwellings, churches, and also exteriors generally, such as street views. Many of these, when illuminated and deeply printed to convey the idea of night, afford much amusement. As most of those present know perfectly well, these effects are produced by coloring the back of the print similar to the method of coloring crystoleum. The print is backed up with a suitably colored ground, and where lights are required, such as candle or gas flames, holes corresponding with the position are punctured with a needle point. Slides of this description are examined by transmitted light like ordinary transparencies.

Sufficient has been brought under notice to raise an opinion on the possibility of progress in the direction indicated, and should these hurried and disjointed sentences fail in their object, to the lack of careful preparation must their failure be ascribed.

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### PRINTING PERPLEXITIES.

*Be sure your paper is dry before fuming.* Try the arrangement I use, which is simply a large dry-goods box—which is also my fuming-box; cut a hole in the bottom of the box, about the size of the top of a large tin pail; cover the hole with sheet-iron; buy a one dollar oil-stove, put it under the box (but don't forget to light it); let the paper, after silvering, hang in the box for half an hour, with a gradual heat under it all the time, from the stove below; and you have as good a drying-room as needed, on a small scale. You can then fume your paper without having to move it. *But be sure to extinguish the light before you fume.* I have found that the nicest way to get blisters (and plenty of them), is to fume paper before it is thoroughly dry. I did this once in a hurry, and I shall not forget it very soon. I hardly ever have blisters—not one in six

months—and I think the secret is in drying the paper.—G. W. WISE.

IN floating the paper on the silver bath, the sheet may be lowered unsteadily, or accidentally stop, and cause a sharp line across the sheet, which will show in the print. Bubbles are *accidentally* formed under the paper by lowering the middle of the sheet upon the bath first. These bubbles, if not speedily removed, will each register a white spot on the print. To remedy this, let one corner come in contact with the bath first, and then lower the whole sheet gradually. A few light taps upon the back of the sheet will remove the larger bubbles, but it is well to make sure of a perfectly silvered sheet, by hastily raising the corner, by first lifting it from the solution with a glass rod, and then catching it with the thumb and finger; any bubbles are in this way quickly removed with the breath or the rod, and by raising successively either of the two opposite corners, the whole sheet may be examined in a few seconds.—R. J. CHUTE.

THE following is only new in the application of heat for preparing the bath for immediate use. It is a very convenient and economical bath, and, being quite neutral, tones readily and without mealiness.

Keep the chloride of gold in an eight-grain solution. About an hour before toning drop into a test-tube a few grains of powdered chalk; measure out sufficient gold solution for the batch of prints (one grain for from two to four sheets of paper being sufficient); pour it on the chalk, and boil briskly over a spirit-lamp, taking care not to boil it over. The advantages of the boiling will be seen by the brisk effervescence between the free acid of the gold and the chalk as soon as they are moderately warm. Thus in three minutes the solution is as effectually neutralized as by standing cold over the chalk for twenty-four hours.

Add this solution to sufficient water to handle your prints in, and your bath is done. Use the solution over and over, adding fresh gold, neutralized in the same way each time of using. A few grains of acetate of soda may be added if a somewhat darker tone is desired, but don't use much.—C. F. RICHARDSON.

"ACCIDENTS."—In toning, the gold is supplied by guess, or the bath is *accidentally* too hot, so that the toning is unmanageable and uneven, and overtoned prints are the result. Accidentally the toning bath becomes impregnated with hypo, and the prints refuse to tone at all. This may occur from having the hands in the hypo, and then putting them in the toning bath without washing. Any handling without carefully washing or changing of tanks or dishes from toning or washing to hypo, or *vice versa*, will be fatal to pure unblemished prints. In the hypo the prints are left without being moved; some are so covered by others that the fixing solution cannot act upon them; the consequence is unequal or imperfect fixation. The inexperienced photographer sees his prints looking yellow and mottled; some are clear in parts, while parts are muddy looking, making him feel almost sick to contemplate it, and to believe that something in the process—he knows not what—has *accidentally* gone wrong. He is right about something having gone wrong, but it was from carelessness or ignorance, rather than *accident*. Move the prints frequently in the hypo, and there will be no trouble with unequal fixing. It must be remembered, also, that a cold hypo bath works much slower than one of moderate temperature. An even or uniform temperature in all the solutions, is one of the surest means of avoiding blisters, and securing the maximum of good qualities in the print.

In the washing-tank the play of water is so arranged that the prints are forced into a bunch in one corner, and *accidentally* bruised and mangled so as to be unsalable. To remedy this, run the lead pipe around the top of the tank inside, and perforate it with holes pointing obliquely inward. This oblique direction of the streams has a tendency to keep the prints in motion, and insures a constant circulation of the water. If the tank can be arranged with a siphon, so much the better.—R. J. CHUTE.

THE object of the hyposulphite bath is to remove completely the remaining chloride of silver, and it should be strong enough to do it completely in from ten to fifteen minutes, and to prevent or control the ten-

deney of heavily albumenized papers to blister. They should be passed directly from the fixing bath to a strong bath of Ashton salt, in which they should be allowed to remain not more than five minutes, when they may be transferred to the tank for final washing, which should occupy at least five hours, with frequent and complete changes of water. When good hydrant water can be had, an automatic washer, with siphon attachment to make the changes, is no doubt the best plan yet devised. It should be observed that in *no part* of the manipulations incident to toning ought the prints be allowed to rest; constant agitation should be maintained.—F. M. SPENCER.

ALL photographers are at one in regard to using fresh hyposulphite of soda for fixing, but I find that they generally content themselves with fresh solution every night; for instance, they put into the fixing bath as much solution as will fix their whole day's work, which may amount to say fifty sheets of paper. Now, to fix these prints well would involve ten operations, as there should not be more than five sheets of paper fixed at one time, and there should be no more solution put into the bath at one time than is necessary for these five sheets, and so on, till all the fixing is complete. Now you may ask, for what is all this trouble and waste? I have good reasons for it, and they are these: Say you try to put in ten sheets; why, before you have got all the prints into the bath, the first will have been in about seven minutes; so that if they are left to fix, for say twelve minutes after the last was put in, you have some of your prints very much bleached and rendered almost worthless. Further: from the immersion of the first print in the soda until they are removed from it, they should never rest, but be constantly turned, as, if left at rest, the soda in immediate contact with them will be so much weakened that it will fail to fulfil its office. But you may say: Why throw it out after it has fixed five sheets? Well, you can see this, that if the solution was just the strength to fix the first batch, it cannot now be of sufficient strength for a second. But you now remark: It was rather to the strong side at first. There it

was you were wrong; it should be just the strength required, and no more. This will be determined by the kind and thickness of the paper used, and the strength of the salting solution. I find that for thick Saxe, six and a half ounces of good hyposulphite of soda to the pint of water, answers the purpose very well.—JOHN STUART.

FIXING PRINTS.—Too little attention has been paid to a fact announced by Mr. Spiller several years since in relation to the perfect fixing of prints. It is well known that albumenized prints exposed to light rapidly change to a cheese color in the lights, while there is no real *fading* of the print whatever. Mr. Spiller found that the addition of carbonate of ammonia to the hypo fixing bath aided in dissolving the albuminate of silver remaining in the paper, which seemed to be the principal cause of this discoloration. I have used this since his announcement, and have repeatedly proved the truth of his assertions. It may not absolutely prevent the ugly change, but it very much retards it, so that prints exposed to strong light retain their brightness much longer. It also prevents the possibility of the hypo being acid, and thus causing *real* fading.

The use of common salt in the hypo will almost invariably prevent blistering in the hypo, which causes those beautiful (?) plum-colored spots on drying.

My formula for the fixing solution stands, therefore, as follows:

Hypo Soda . . . .	4 ounces.
Carbonate of Ammonium . . . .	1 ounce.
Common Salt . . . .	2 ounces.
Water . . . .	1 quart.

—C. F. RICHARDSON.

## THE APPLICATION OF PHOTOGRAPHY TO ASTRONOMY.\*

BY DAVID GILL, LL.D., F.R.S.,

Her Majesty's Astronomer at the Cape of Good Hope.

LITTLE more than a year ago, Mr. Ainsley Common delivered a lecture in this place on the subject of "Photography as an Aid to Astronomy." Given by one who is a consummate master of the art of celestial photo-

\* Communication to the Royal Institution.

tography, that lecture—complete as to history, and full of suggestions as it was—would, under ordinary circumstances, have precluded further reference to the subject in these Friday evening lectures for some years to come.

But the past year has witnessed such development of the subject, and the importance of photography in astronomy has been so much advanced by the conclusions of the recent Astrophotographic Congress, as to afford a reasonable apology for the present lecture.

On the 16th of April last there was held at Paris a Congress attended by upwards of fifty astronomers and physicists, representing nearly every civilized nation in the world. It was convened for the purpose of considering a scheme of international coöperation in the work of charting the sky on a large scale; or, rather, its object was to obtain a series of pictures which, taken within a comparatively limited period of time, and with the necessary precautions, would enable astronomers of the present day to hand down to future generations a complete record of the positions and magnitudes of all the stars in the heavens to a given order of magnitude. The labors of that conference are now concluded, certain important resolutions have been adopted, and the way has been so far cleared for giving these resolutions practical effect.

It seems of importance, therefore, to lay before the members of the Royal Institution some account of the history of this remarkable Congress, to illustrate and explain the grounds of the conclusions which it has arrived at, and otherwise to bring the history of photographic astronomy up to the present date.

I pass over the already well told early history of celestial photography, except in so far as it relates to star charting. It was Warren de la Rue who first called attention to the means furnished by photography for charting groups of stars. In his report to the British Association at Manchester, in 1861, on the progress of celestial photography he indicates a photographic object-glass of short focus, as the instrument best suited for the purpose, and he states that by mounting such a lens and camera on an equatorial

stand provided with clockwork, he has photographed such groups of stars as the Pleiades, the chief difficulty being not to fix the images of stars, but to distinguish them from the specks which are found on the plates, or rather in the collodion.

In 1864 Rutherford, of New York, completed a telescope of  $11\frac{1}{2}$  inches aperture and 14 feet focal length, specially constructed for celestial photography, and obtained fine photographs of stars to the ninth magnitude. His remarks, although quoted in Mr. Comman's lecture last year, have such importance on the present subject that I venture to repeat them:

“The power to obtain images of the ninth magnitude stars with so moderate an aperture, promises to develop and increase the application of photography to the mapping of the sidereal heavens, and in some manner to realize the hopes which have so long been deferred and disappointed.

“It would not be difficult to arrange a camera box capable of exposing a surface sufficient to obtain a map of two degrees square, and, with instruments of large aperture we may hope to reach much smaller stars than I have yet taken. There is also every probability that the chemistry of photography will be very much improved, and more sensitive methods devised.”

Mr. Common well remarks that in the light of recent work, these words are almost prophetic.

But Rutherford did not stop here. In the eyes of an astronomer a picture of stars is of comparatively little importance unless it is capable of accurate measurement. Recognizing this important feature of the case, Rutherford devised a suitable apparatus, which he applied to the measurement of two of his photographs of the Pleiades. These measures having been put into the hands of Dr. Gould, that astronomer compared them with those of the same group of stars made by Bessel with his celebrated heliometer, and found a satisfactory accordance.\*

Encouraged by these results, Dr. Gould, when he went to the Argentine Republic in 1870, to found the Cordoba observatory, which has since been rendered so famous by

\* *Astron. Nach.*, No. 162, vol. xlviiii., Dec. 1866.



his labors, took Rutherford's telescope with him. Unfortunately one of the lenses was broken in transport, and such delay was incurred in replacing it, that the proposed work could not be begun until 1875. But thanks to the clear skies of Cordoba, and the marvellous activity of the observatory under Dr. Gould's direction, 1350 photographs were obtained in the course of a few years, containing representations of all the principal clusters of the southern hemispheres, besides a special series of plates taken for the purpose of determining the parallax (or distance) of several of the more remarkable stars in the southern hemisphere.

This fine series of pictures is now being submitted to measurement by Dr. Gould, and the results are awaited with the greatest interest by all astronomers.

The first of Dr. Gould's plates were taken with the old wet collodion process, but the work was afterwards greatly facilitated by employment of the more sensitive modern dry plates.

It was, in fact, the reintroduction of the gelatine dry plate process in 1876, which really paved the way for the rapid development of celestial photography. The convenience of the manipulation, and the great increase of sensitiveness of the plates at once placed a new power in the hands of astronomers. Draper photographed the nebula of Orion in 1880; and after trials, commencing in 1879, Common succeeded in obtaining the exquisite photographs of that object which have been exhibited more than once in this theatre.

In 1882 appeared the splendid comet of that year. At the Royal Observatory, Cape of Good Hope, we were not at the time engaged in photographic operations. Several photographers in the Cape Colony found it possible to obtain impressions of the comet, but they were unable to secure pictures of scientific value, because they were unprovided with means to follow the diurnal motion. I had no available camera belonging to the observatory, and no experience in the development of modern dry plates. In these circumstances, I applied to Mr. Allis, a skilful photographer in my neighborhood, who eagerly consented to cooperate with me in the work. I arranged means to attach

his camera to the stand of an equatorial telescope, and the telescope itself was employed to follow the nucleus of the comet accurately during the whole time of exposure by the aid of the driving clock, and with small corrections given by hand. The lens employed had an aperture of only two inches, and a focal length of eleven inches; but the result was a series of pictures, one of which, obtained after an exposure of two hours, is now on the screen.

The photograph shows a very satisfactory delineation of the tail and envelope of the comet. Important and useful as these results were, there was another feature of the pictures which seemed to me still more so. In forwarding copies of these photographs to the Royal Astronomical Society of London, and to the Paris Academy of Sciences, I drew particular attention to the large number of stars shown upon the plate, and insisted upon the importance of the means thus offered to photograph comparatively large areas of the sky, and thus rapidly make charts of the entire heavens.

The one step wanting was now provided, and the new and more sensitive dry plate rendered the former suggestions of de la Rue and Rutherford now valuable and practicable.

Formerly, the old collodion wet plates required large instruments (with small field) and long exposure to depict stars even to the ninth magnitude, and astronomers trusted entirely to the accuracy of their driving clocks, which could not follow a star with perfect accuracy during a long exposure. Now the modern rapid dry plates, in conjunction with the large fields of the photographic objective, overcame the first of these difficulties, and the plan of employing a guiding telescope overcame the second.

The use of a guiding telescope was not even a new device, for it had been employed long before by Hartnup and others, who, in their early attempts to photograph the moon, kept the image of a lunar spot by hand upon the cross wires of the finder of the telescope during the long exposures then necessary.

There was thus nothing really new either in my suggestion or in the *modus operandi*, only the result was a fortunate one, for Mr. Common says that "these photographs

came to him as a revelation of the power of photography for the purpose of star-charting,"\* and Admiral Mouchez tells me that these Cape photographs and my suggestions first directed his attention, and that of the brothers Henry, to the application of photography to the work of star-charting, which had for many years been carried on at Paris by the older methods of astronomy.

Common was amongst the first to take up the work in England, and here on the screen is one of his photographs with a four-inch lens executed in December, 1883. But being engaged in other researches, Common made no attempt to commence a systematic survey of the heavens.

Isaac Roberts, of Liverpool, was also early at work in the same field, and after preliminary experiments he acquired a powerful telescope, with which he began a systematic survey of the northern heavens.

It required some time to find the necessary means and apparatus to begin the realization of my ideas at the Cape, but at last the work was started in the beginning of 1885, on the following definite plan, viz., to complete the cartography of the heavens from 20° south of the Equator to the South Pole, and so as certainly to include all stars of the ninth magnitude.

(To be continued.)

### PRACTICAL POINTS FROM THE STUDIOS.

**PREPARATION OF SOLID BROMINE.**—Our journals of chemistry speak of a new preparation of Mr. A. Brand, which he calls solid bromine. It is simply a compound of silica impregnated with a certain quantity of bromine. For this purpose is taken the silica of infusoria (vieselguhr) mixed with one per cent. of lime or soda, which is steeped in the bromine. We obtain in this way little sticks of silica of seven millimetres in diameter, which contain about one gramme of bromine for each centimetre of their length; or, larger sticks having a diameter of fifteen millimetres and about three grammes of bromine per centimetre. By heating these sticks, they give off bro-

mine in vapor. They may also be used for introducing a given quantity of bromine in a solution, for the silica still remains and may be easily separated. This is a convenient method of manipulating bromine in the laboratory, without risking the effect of its vapor so injurious to health.—DR. PHIPSON in *Moniteur*.

**PHOTOGRAPHIC TRAVELS.**—The results of several photographic voyages have been recently published with more or less illustrations; among others, a voyage in Italy, by Mr. G. R. Thompson, the learned and skilful photographer, and a voyage to Venezuela, by Mr. Lionel Clarke, photography being the principal object of this distant excursion.

**THE APPLICATION OF THE ELECTRIC LIGHT TO PHOTOGRAPHY BY MEANS OF DOUBLE REFLECTION.**—Mr. Walery now uses a process of electric photography which gives him the most excellent results. We have seen some remarkable clichés, among others magnificent portraits of the members of the French Academy obtained by the aid of this process, which consists in reproducing, as far as possible, the play of the solar rays, that is to say, in using a great deal of light and diffusing it at an angle of forty-five degrees. For this purpose he uses a very powerful source of light, formed by a Gramme lamp, on which is adapted a silvered reflector whose depth is one third less than the width, say 0m, 24 in diameter, by 0m, 08 in depth. This reflector is placed in such a way that the luminous focus is in the centre and is balanced so as to allow its backward and forward motion, and also a motion from right to left. The lamp and its reflector are placed on a stand. Besides, a large reflector coated with highly photogenic gray white paint is used. This reflector also turns on two bearings placed at one-half of its height by which it may be inclined backward and forward. To operate, place the lamp a little back of the sitter and the large reflector in front so that the luminous rays coming from the regulator may strike the reflector and return on the sitter, describing an angle of forty-five degrees.

\* Proc. Royal Institution, vol. xii., p. 734.

Between the lamp and the sitter place a screen covered with thin muslin, which serves to soften the direct rays, and on the opposite side to the sitter place a screen similar to those used to lessen or increase the shadows in all photographic ateliers.—*Journal de l'Industrie Photographique.*

**PRESERVATION OF THE SULPHATE OF IRON SOLUTION FOR THE IRON DEVELOPMENT.**—The solution of sulphate of iron used for developing images is rapidly decomposed, especially if kept in bottles not entirely filled. This trouble may be easily prevented by driving away the air found at the surface of the liquid by means of a non-oxidizing gas, such as carbonic acid gas or hydrogen; this operation should be repeated every time this solution is used. Morris (*British Journal Almanac*, 1888), to arrive at the same end, made use of illuminating gas, and he obtained excellent results. This gas evidently should not contain sulphuretted hydrogen, etc. The amateur photographer who works on a small scale should divide up the iron solution into a great number of small vials, well stoppered, so that each bottle contains a sufficient quantity of the solution for three or four developments at the most. The iron solution keeps well in full bottles that are well stoppered.—*Photog. Rundschau.*

**A PROCESS TO REMOVE SILVER STAINS ON GELATINE NEGATIVES.**—The negative is steeped for five minutes in pure water, then in a solution of iodide of potassium (1 part of iodide of potassium in 24 parts of distilled water). The plates are kept in this bath for about ten minutes; when the spots are old the plates should soak for thirty minutes. On coming from the iodide of potassium bath the plate is plunged into a solution of cyanide of potassium (1 part of cyanide of potassium for 16 parts of distilled water), and the spots are carefully rubbed with a small tuft of cotton until the plate is very smooth, and until no difference can be seen between the place in which the spot was and the adjoining castings. To remove very old spots stronger solutions are used, and the plates are submitted for a longer time to their action.—*Photog. Rundschau.*

**NEGATIVE PRINTS FOR PHOTO-LITHOGRAPHY.**—The negative print is strengthened in the ordinary way, by means of pyrogallic acid and nitrate of silver, then fixed and washed. It is afterward placed alternately in a solution of bichromate of potash and permanganate of potash, until it has obtained a dark orange-yellow color; it is now washed and dried. The varnish generally used for the negative print is covered with an alcoholic solution of aniline blue. It follows that the background of the negative print, under the action of the light passing through it, takes a deep black color and the lines become blue. A negative print prepared in this manner will surely give a print having the desired appearance.—*Photogr. Archiv.*

### ORTHOCHROMATIC PHOTOGRAPHY.\*

BY C. H. BOTHANLEY.

THE subject of orthochromatic photography has latterly attracted considerable attention, and has become of so much importance that a *résumé* of the results which have so far been obtained might not be without interest to the Convention. It is well known that ordinary photographic pictures have not true "values," that is, do not represent the various colored objects with their proper degrees of relative brightness. Yellow, orange, and green objects, which are bright to the eye, are almost black in a photograph; whilst blue, purple, and violet, which are comparatively dark to the eye, are practically white in a photograph. The explanation lies in the fact that ordinary photographic plates are very sensitive to blue and violet rays, but are only very slightly affected by green, yellow, and orange rays; whilst the eye is most sensitive to yellow, orange, and green, and is only very slightly sensitive to blue, violet, and red. In order to obtain pictures with true "values," it is therefore necessary to alter the character of the plate in such a way that its sensitiveness to blue and violet is very much diminished, whilst its sensitiveness to yellow, orange, and green is very much increased.

\* A communication to the Photographic Convention.

In 1873, Vogel discovered that the addition of certain dyes to collodion plates makes them very sensitive to orange, yellow, and green, and his results were confirmed by other observers. In 1882-3, Attout and Clayton took out a patent in France and England for the application of eosine in conjunction with an alkali to gelatine plates, the word eosine being used inclusively. Dr. Eder, of Vienna, has investigated the effect of a very large number of dyes on gelatine plates, the dyed plates being exposed to the solar spectrum. He found that several dyes slightly diminished the sensitiveness of the plates to blue and violet, whilst they increased the sensitiveness to green, yellow, or orange in a marked degree. Only comparatively few dyes, however, exert any useful sensitizing effect. Eosine and its allies and cyanin were found to give the best results.

The author has repeated Eder's experiments with the eosine dyes and cyanin, using the spectrum of burning magnesium instead of the solar spectrum.\* His results confirm generally those of Eder, but he finds that a much greater sensitiveness to yellow, etc., can be conferred upon the plate than was observed in any of Eder's published experiments. Plates treated with an aqueous solution of erythrosine or an ammoniacal solution of rose Bengal are about half as sensitive again to the yellow as to any other part of the spectrum; whilst plates treated with an ammoniacal solution of erythrosine are about two and a half times as sensitive to yellow as to any other spectral region.

There are two methods of adding the dye to the gelatino-bromide. In one, the dye is added to the melted emulsion, or to the solutions before precipitating; in the other, the dried plates are steeped in an aqueous or ammoniacal solution of the dye. There is at present a large preponderance of evidence in favor of the latter, or "bath," process, so far as regards the rapidity and orthochromatic effect of the plates.

The particular dye to be used depends on the nature of the effect desired, since dif-

ferent dyes confer a maximum sensitiveness for different rays. The following list may be useful: Chrysaniline for green; eosine for yellowish green; erythrosine or rose Bengal for yellow; cyanin for orange and orange-red; cœrulein S. for red. For general purposes erythrosine, which is closely related to eosine, is the best, since it confers a maximum sensitiveness for yellow, together with considerable sensitiveness for orange and green, especially if used in ammoniacal solution. Of the many articles which are in the market, the author recommends either the "erythrosine extra" of Meister, Lucius, and Bruning, or the "erythrosine 1" of the Badische Anilin und Soda Fabrik. The method recommended for preparing the plates differs but slightly from that of Mallman and Scolik, or Eder. The plate employed should be of maximum rapidity, since highly sensitive plates are so near the fogging point that the treatment with ammonia and the dye is very liable to carry them past this point. Paget Prize Plates XXX., or Wratten's ordinary, answer very well. The plates are carefully dusted with a camel's-hair brush, and are then soaked for about two minutes in a one per cent. solution of ammonia, drained for a few seconds, and then immersed for about two minutes in the following solution:

Erythrosine solution (1 : 1000)	. 1 part.
Ammonia (1 : 10)	. . . . . 1 "
Water . . . . .	. 8 parts.

All operations connected with the preparation and development of the plates should be conducted in as weak a light as possible. Yellow light may be used if extreme care is taken to keep the plates covered up; but it is better to use ruby light, such as is given by a candle behind one thickness of ruby glass or paper. Exposed plates are best developed by means of alkaline pyro tolerably well restrained. All the other operations are conducted in the usual way.

Although the application of the dye increases the sensitiveness to yellow, etc., the sensitiveness to blue and violet remains much too great, and in order to obtain correct gradations it is necessary to diminish the intensity of the blue and violet rays by interposing a transparent yellow screen be-

\* For details see the Journal of the Society of Chemical Industry, June, 1887, pp. 423-433.

tween the object and the lens, or between the lens and the plate. The depth of tint of the screen determines the proportion of blue and violet which is cut off, and hence determines the relative prominence given to yellow, orange, etc. By properly selecting the depth of screen to suit the subject and the result desired, the photographer is able to exercise very considerable control over the character of his picture. The best form of screen consists of a film of dyed collodion, gummed to the diaphragms of the lens. A yellow dye, such as Manchester yellow, or aurantea, is dissolved in enamel collodion to the required depth of tint, and the collodion is poured on a carefully polished glass plate. When dry, the collodion is stripped from the plate and cut into pieces of suitable size. A plate of yellow glass, or of ordinary glass coated with dyed collodion or gelatine, may also be used, and is best cut in the form of a circle and placed inside the hood of the lens—a position in which it does not interfere with the use of cap or shutter. It is essential that the faces of the glass screen be as perfectly parallel as possible, in order that the definition of the lens may not be interfered with.

Treatment with the ammoniacal dye solution increases the rapidity of the plates about three times, but the yellow screen cuts off nearly all the blue and violet, and hence the use of the screen increases the exposure required to twice, thrice, or even ten times that of the undyed plates without a screen, the time depending on the depth of tint of the screen.

In order to illustrate the character of the results obtainable, the author exhibited several sets of photographs of various colored objects: (1) on an ordinary plate without any screen; (2) on a dyed plate without any screen; (3) on a dyed plate with a yellow screen. The time of exposure was the same in all three cases, and since the plates exposed without a screen were very much over-exposed, every chance was given for the yellow, orange, etc., to register themselves on the plates. Undyed plates exposed for the same length of time behind a yellow screen gave no trace of a developable image. Each plate was developed with a view to obtain the best possible rendering of the

yellows, greens, etc. The examples shown included photographs of a scale of colored paper, chromo-lithographs, flowers, pottery, and landscapes. The "values" of the pictures taken on dyed plates with a yellow screen are very satisfactory, and are an immense improvement on those taken in the ordinary way. In the case of the flowers and pottery the difference was very marked indeed. When the dyed plates are exposed without any screen, the rendering of yellow, green, and orange is very much improved, but blue and violet are far too light. It is only when the yellow screen is used that the values become correct. Care is necessary, however, to avoid cutting off too much of the blue and violet, and thus making the gradations incorrect in the opposite direction. In landscapes the improvement was much greater than was anticipated. It is most marked in the rendering of masses of foliage and of the different shades of green. Moreover, the yellow screen cuts off the greater part of the blue atmospheric haze, and thus gives clearer distances.

Many points of detail require further investigation, but it may safely be said that orthochromatic methods place great additional powers in the hands of the photographer, and constitute a great advance in both scientific and artistic photography.

### PHOTOGRAPHIC FACTS AND FANCIES.

AN ALLOY RESISTING THE ACTION OF ACIDS.—Lately some manufacturers have advertised in the journals and shown at exhibitions, tubes and faucets made out of an alloy which is said to entirely resist the action of acids and alkalis. One of the journals of chemistry even goes so far as to say that this new compound might take the place in laboratories of ebonite, porcelain, and glass.

The analysis of a sample of this alloy shows that it consists of from 5 to 16 parts of copper, 2 to 2½ parts of *tin*, 1 to 2 parts of *lead*, and 1 part of antimony. It is, therefore, a species of bronze. It is evident that an alloy of this composition cannot resist the action of hot acids, nor even that of cold nitric acid. It would, therefore, be very dangerous to use it instead of the por-

celain or ebonite articles. As to the faucets of chemical apparatus, they should be made of earthenware, glass, or porcelain, and metal should never be used even for cold diluted acids, unless the faucets be made of platina, metal much too costly for faucets of rather large size.

**A DISGUSTED MONARCH.**—It happens occasionally that even the most powerful monarchs are unable to fulfil their wishes. On one occasion Alexander the Great, who was born 323 B. C., wishing to have his photograph taken, went to the studio of Heliodoros & Bros., on the corner of Broadway and Park Place. Upon making known his wish, Heliodoros called Alexander's attention to the fact that photography had not yet been invented. "I forgot all about that," remarked Alexander. "I guess I'll have to wait a while," and he walked off very much disgusted.—*Texas Siftings*.

## HINTS ON BROMIDE ENLARGEMENTS.

BY DR. E. LIESEGANG.

IRON oxalate is preferable to pyrogal as a developer for enlargements, because blacker tones can be obtained with it, and white ones remain more clear. It is, therefore, of great importance that the corresponding solutions of oxalic potash and of iron vitriol are thoroughly filled. To dissolve the salt, boiling or very warm water is used. The solution of oxalic potash is made weakly acid by means of sulphuric acid.

In developing it has been practically proven to begin with an old iron oxalate solution until a sign of the picture appears, then to pour this off, and to cover the plate with the following fresh-made solution:

Impregnated solution of oxalate of potash, 180 c. cm.; impregnated solution of iron vitriol, 15 c. cm., bromide kalium solution, 1.10, 2 c. cm.

In this way the developments can be better managed. If the picture is underexposed, then 30 c. cm. of iron vitriol can be added. The iron solution must be poured into the oxalate solution, not the reverse. To improve the pictures by coloring the

white parts yellow, it is well, just as soon as the developing solution drips down, to pour over the print instantly a weak solution of acetic acid and water (1 part acetic acid and 140 parts water); then it can be washed and fixed, when it should be laid, with the picture-side downward, in a fresh solution of fixing soda of 1:8; it is fixed in from 5 to 10 minutes. By this means it can be moved to and fro. After the fixing the print should be washed off for at least two hours in running water.

The least sign of fixing soda on the fingers spoils the developer. If there are more enlargements to be made, it is well to develop first successively, and to lay each separate print, as it comes out of the acetic acid solution, in the water trough to be washed off, and then to fix them all in succession in a fresh soda solution. In this way it is impossible for the fixing-soda solution to come in contact with the developer. My experience is, that it is not advisable to produce more than two enlargements with the same developer, because, otherwise, the iron, which absorbs some oxygen from the air, gives the paper a disagreeable yellow color, which is not noticed until the print is dry, when there is no remedy.

Usually, the enlargements are allowed to dry voluntarily with dull surface, but sometimes, particularly in enlargements of smaller sizes, it is desirable to give them a glossy surface. To effect this, let the surplus water drip off the print when it is taken out of the washing water, then lay it, with the picture side downward, upon a particularly prepared hard ferrotype plate, to which it is brought in close contact by the use of a caoutchouc roller. The latter can be prepared by using a caoutchouc skin 30 cm. long, 6 mm. thick, and an inside diameter of 26 mm. The surplus moisture on the back of the print can be removed by using a sheet of blotting paper. When the paper is withdrawn from the plate the picture shows a beautiful gloss.—*Archiv*.

## OUR PICTURE.

DURING the past three years particularly the photographer who has watched the rapid development and the wonderful attainments

of photography, has frequently asked himself the question, "When is this thing going to stop? What will it grow to? When will it reach its utmost?"

These are queries that no one can safely answer. Our art goes continually on, winning new victories, showing new possibilities, revealing unexpected charms.

The always fickle sun, once considered an essential in making pictures, may be done away with; the true value of colors may be rendered in the negative, and a process for the reproduction of unlimited quantities, of uniform quality, and presenting all the values of light and shade possessed by the negative, is in every-day use.

So far as photography has grown, then, up to day, these three attainments produce combined results which may be considered *the perfection of photography*.

An example is given in our current issue from the famous works of the Photo-gravure Company, of New York. The subject is the banquet scene in Shakespeare's play of "The Taming of the Shrew," as rendered by the Daly Company, of New York, last winter.

Thus we have a pictorial interpretation of the lines of the most famed poet; the character assumed by persons highly educated in their art, full of feeling for the work; the rich costumes, carefully made after the best patterns in the noted museums; the accessories and furniture gathered during a year or two of earnest research; the scenes painted after true antique studies; the studied positions and the whole composition after the best paintings of the period represented by the play; the whole thing a simple scene from the play upon the theatre stage, just as hundreds of audiences have seen it; the skilful lighting accomplished by the introduction of only a few extra electric lamps; the exposures accurately timed; the orthochromatic plates of Mr. John Carbutt used, developed with skill, and, lastly, the magnificent permanent prints by photo-gravure.

No such picture would be possible in a studio, or by sunlight. The difficulties are too obvious for us to mention. But we have here the acme of photographic production. The highest and best reach our art has made up to to-day; and, when we think of it, a

perfect marvel—the more perfect and the more a marvel it seems as we examine it, and think over it.

It is a composite of all the pretty phases which our art has produced, and there is no mistaking the likeness. The photography, good art, fine technique, excellent handicraft, are shown upon every lineament. It is above all else that has been done, in the sense we desire to express.

The method of making the negative is well understood. We desire to add some information on the process by which the lovely prints were made.

They can be produced similarly from any good negative sent to the Photo-gravure Company. Thus a power for reproducing quantities is placed within the reach of every photographer.

At a recent meeting of the Photographic Section of the American Institute, Mr. Ernest Edwards, President of the Photo-gravure Company, read a highly interesting paper on "The Art of Making Photo-gravures." To illustrate the grain and line work of the different photo-mechanical printing processes, he projected them upon the screen with the sciopticon.

We quote from the lecture as follows:

"If I may venture the prediction, I think the history of photography for the next decade will be the history of orthochromatic work. Surely, next to the production of the colors themselves, there is nothing to be desired so much as the rendering of the true values of these colors. I place the orthochromatic or isochromatic negative as the highest point yet attained in negative-making, and as constituting the outcome to-day of that germ that was brought into being nearly a hundred years ago.

"Now let us consider for a moment what are the conditions necessary to be secured in a metal plate made by photography and suitable for plate-printing. In the case of a subject in line only, an incised line or groove must be made below the surface of the surrounding metal. The ink is dabbed or rolled into such lines, and the surface of the plate cleaned with cloths and the ball of the hand, leaving the ink only in the incised lines. This ink is transferred to paper

by pressure, and becomes the impression. This is all well enough in the cases of lines, but it is clear it will not be sufficient where there are masses of shadow or half-shadow. The cloth, or the hand, will wipe away the ink from these masses of shadow, unless something is done to prevent it. Of course, in line-engraving a series of lines may be made which forms a shadow, each of which series has an ink-holding capacity, and, out of which, the ink cannot be wiped. The closer these lines are together and the deeper they are, the stronger is the shadow produced, because the smaller is the amount of surface to be wiped clean. Again, to go a step further, a series of lines may be incised or engraved on a plate, and at right angles to these a similar series. In this way, assuming that the incised lines are V-shaped, nothing will be left of the surface of the plate but a series of points, each of which is the apex of a pyramid and each of which prevents the cloth or the hand from wiping the ink out of that portion of the plate surrounding it. This is the essential cardinal feature of a plate for plate-printing, and this is the essential cardinal feature which must be obtained in any photographically-produced plate of a similar kind. Whether formed in the way I have described, or whether the plate is honeycombed with a series of cells, of which the walls reach to the surface of the plate, there must be an ink-holding capacity to the plate, which must not, therefore, simply be a plate in relief and depression. If that only were needed, it would be easy enough to make, by means of gelatine and bichromate, a picture or matrix in relief and depression from any photographic negative, and deposit copper on it till thick enough to print from. But such a plate could have no value, as it would have no ink-holding capacity; and, therefore, all the ink would be wiped out of it in the process of cleaning. Some device must be obtained by which this ink-holding capacity, or grain, as it is commonly called, shall be given to the plate. The solution of this problem has been sought by an army of experimentalists, and numberless ingenious devices have been utilized in order to solve it. It may be broadly stated that the production of a grain which

shall be effective for the purpose and yet shall not be apparent in the finished picture, is the keystone of all methods or processes for making successful photo-gravure plates.

“This is the method of Fox-Talbot. Altogether his process is marvellously close to the method of producing photo-gravure plates by etching, as now practised.

“But of all these processes, with all the ingenious devices invented in connection with them, two only remain in general use to-day. One is the deposit, the other is the etching process. I venture to predict that finally the etching process will be master of the situation. Letting alone the greater facility and economy of production it offers, the results produced by it are equally good in the case of reproductions, and better in the case of photographic work directly from nature or life. I have stated that the etching process is the one used by our company, and the results are before you. I am bold enough to say that photo-gravure work in America to-day equals any in the world in the matter of reproductions, and excels any in the world in the matter of pure photographic work. I shall ask your patience a moment longer whilst I describe broadly our method of producing a photo-gravure plate.

“But I would like to say a word as to the advantages of photo-gravure as a method of photo-mechanical printing. It is not a cheap process. It cannot be printed with type. But just as a steel or copper-plate print has qualities which are not possessed by a wood-cut, a photo-gravure has qualities—qualities which go without saying, not possessed by any method of typographic photo-engraving. What is known as the photo-gelatine process also produces results superior to the type method. But, although photo-gelatine work has a quality of its own and is in some respects unexcelled, photo-gravure, in other respects, has advantages over it. A photo-gravure can be improved and altered as much as may be desired after the plate is made till just the result needed is obtained, and when obtained the printing ceases to be a source of anxiety, as the edition printed should always be uniform. The



plate is good for subsequent editions—which are exactly like the first—whenever desired, and they are made without the further action of light. There is a strength and robustness, and the blacks are more nearly velvet in a good photo-gravure plate than in any other photographic method. And there is room for far greater artistic development in photo-gravure than in any other photographic method. I cannot forbear in this connection from adverting to an unfortunate tendency that exists among some manufacturers and some publishers to call photo-gelatine work by the name of photo-gravure. What is the sense of this? Nothing in the world can beat the special qualities of gelatine printing—qualities which photo-gravures do not possess. And nothing in the world can beat the special qualities of photo-gravures—qualities which photo-gelatine prints do not possess. To my mind it is as much an outrage on photo-gelatine as on photo-gravure work to reverse the names. Yet the tendency is to do just this thing—a serious mistake that will become, if not checked, a serious misfortune. Would there be any sense in calling a lithograph a steel engraving? It would be just about the same as calling a photo-gelatine print a photo-gravure; and, though the result might benefit the producer for the moment, it would be otherwise when the deception was discovered.

“In going through all the ancient, yet modern, history of the development of photo-gravure, one can but ask that old, old question, ‘What is there new under the sun?’”

“With the story before us of Fox-Talbot’s process, and the process of Petch, of Woodbury’s process, and of aquitint engraving, of steel-facing, and all the other tricks and turns, what is there new in what we are doing to-day? Nothing, absolutely nothing. These men played the same play we are playing, knew the words and the cues just as well as we do, only in one respect, one grand respect, is the situation changed. They played to empty benches. We have an audience—largely in this vast new world—an audience ready to applaud and to support all those results and efforts which tend to raise photography into art.”

## HINTS ON LANDSCAPE PHOTOGRAPHY.

RECENTLY I have commented on various points connected with portrait lighting. Of course light and effect in landscape are not less important. Many amateurs see beautiful scenes in nature, and, without thought of choice of ground, point of sight, or of management of light, expose their plates, hoping to record what they see. Naturally, the results are disappointing. In nature we must seek effect and pose, so to speak, as in portraiture. A landscape should, as a rule, be photographed with the *shadows toward the instrument*, not the reverse, as is customary with most operators. I put this in general terms that it may be more readily understood. The broad illumination of an entire view by the noonday sun gives, as will be seen at once, a flat, shadeless, and, consequently, uninteresting picture. Therefore, it will be seen that it is not at all times of the day that a view may be taken—nor, indeed, on all days. One summer, for three weeks, I rose every morning at four o’clock in order to photograph a certain view free from mist, and with shadows just as I desired them to be. Finally, I secured the negative. Attention being once called to the fact that landscapes without shadows are meaningless, the seeker after the beauties of nature will soon learn, from the results of his own observation, to select the best hours for his work.

The securing of the right point of view is also of great importance, both as to determining the right elevation and the point of observation horizontally. If too high, the line of the horizon is raised too much, and one has a vast expanse of possibly uninteresting foreground. It is an inflexible rule in landscape representation, whether by the brush or camera, that the line of the horizon should never be just midway between the top and bottom of the picture, and thus divide it into two equal parts, but always either above it or below it. Then, as one goes to the right perhaps the view is widened out and the objects separated and depressed, while a few steps to the left would reverse the order of things and pile up in picturesque combination the objects sought. Often-

times the villainous telegraph line and pole intrude upon the scene, when, by a little management in choosing the point of view, it might be hidden behind trees, or in some way confused with other lines or objects in the view, and so partially if not wholly concealed.

Foregrounds may be regarded as the key-notes to landscapes, and should be chosen or arranged with consideration for their effect on the whole. If objects cannot be utilized, shadows may aid in breaking up the monotony of the foreground and imparting effect by contrast. Of course these can only be secured by a choice of time that will give such shadows, although, of course, the points of compass may be in such relation to the view as to render it out of the question at any time. But there may be a friendly log, rock, stone, bush, or some characteristic object, which a pair of stout arms, aided by a willing spirit, will transport to some telling spot, and make a division of the foreground by breaking up its level and uniform character.

Figures should be characteristic of the landscape. The carefully dressed, "citified" person has no place in a rural scene; but the barefooted boy, the sun-bonneted rustic maiden, or the husbandman with scythe or sickle, will generally lend interest to the picture, unless the figure is so posed as to appear to be sitting for its portrait. Never let your model look at the camera. That would be fatal to the result; for, from being merely accessory to the landscape, he becomes the central object, and the view becomes secondary. So in placing figures do not let them be obtrusive. Never pose them in the centre. Generally let them be looking in such direction as might suggest the idea that they, too, are enjoying the beauty of the view, or are *unconsciously* contributing to the interest of the composition. If the figure can be doing something, so much the better; let him be hunting, fishing, or even walking, if he can be made to appear to do so naturally.

Carriages are as much out of place as the carefully dressed, "citified" person; but an old hay-laden cart or rustic market-wagon may be so placed as to add greatly to the picturesqueness of the scene.

Distance should, when practicable, be so treated as to avoid bringing the salient light in the centre of the picture. The predominance of a glaring object of any kind in the middle cuts the picture in two and destroys all unity. So let the camera be placed considerably to the right or to the left. Be careful of excess in this matter, however, or the balance of the picture may be very much disturbed. One side of the picture, for instance, may be overweighted with objects, while the other side may be almost bare. In photographing, of course, one cannot indulge in full artistic license, for the objects are before us often in such shape, arrangement, and light, as to render it impossible to change or modify them in the slightest degree; yet one who is on the alert for the best results, and brings to his work some knowledge of general art principles—especially of composition—has an immeasurable advantage over the merely mechanical photographer. The exquisite pictures by Robinson, of Tunbridge Wells, and Sutcliffe, of Yorkshire, are the results of a thorough knowledge of art principles, combined with technical experience and patient enthusiasm. Each of these gentlemen will devote days, sometimes weeks, to the production of one negative. In this busy land of ours, where we do everything in a hurry, this sort of thing seems impracticable; yet, surely, it were better to get one result with positive artistic merit, than to secure a dozen or more hastily selected and uninteresting views.

Concerning lenses, I would suggest that the long focussed, rapid rectilinear style should always be used. These seemingly give the nearest effect to that which is obtained by the human eye. The wide angle strains the laws of perspective, and proves that photography, at times, will lie, in spite of the oft-quoted saying to the contrary.—GEORGE G. ROCKWOOD, in the August *Art Amateur*.

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#### QUARTER CENTURY.

IF it was simply a matter of putting money in our own purse, we should hesitate to write another word on this topic.

But we are conscious of having tried to

produce an honest book—one of value to everyone who can focus a camera—and of crowding it with a wealth of experience notes as fully as we could afford, under all the circumstances, and therefore pretend to no false modesty in alluding once more to the importance of this book being where it belongs—*every* where it belongs, instead of upon our shelves. We are all the more free to do this when we find ourselves backed by such testimony from contemporary merchants and co-workers from all quarters, as follows:

Commended by resolution of the P. A. of A. Convention in Chicago, Aug. 11, 1887.

The copies you sent were sold on the instant of their arrival. I took my copy home and have revised it carefully. I am charmed with your concise introduction and lucid explanations. You have done well for our art-science, and it will give me pleasure to sell *Quarter Century*.

GAYTON A. DOUGLAS,  
Chicago.

I am very much pleased with it, and wish you every success.

WM. McCOMB,  
Muskegon, Mich.

I have twenty-one books on our art. *Photographics* and *Quarter Century* are the best of the lot. Would not part with either.

W. JUDD,  
Mancelona, Mich.

Please send me, for use in the office of the Surveyor General, Technical Branch, Department of Interior, Ottawa, Canada, one copy *Quarter Century in Photography*.

E. DEVILLE.

This book is one which the earnest professional or amateur will find to be a mine of wealth. It professes to be, according to the title-page, "a collection of hints on practical photography, which form a complete text book of the art." And we may at once say that this is no idle boast. The book simply teems with valuable hints and facts stored up, not only by the indefatigable author, but by all the other practised hands that we ever heard of—and a great many more besides. This book brings the art well up to date, with a description of

the new printing processes, color-sensitive plates, and photo-engraving methods; indeed, when we turn over its 500 pages, we find it impossible to point out the most trifling omission. Perhaps the most valuable chapters in the volume are those which deal with glass-house construction, the work "under the skylight," and, notably, the chapter on "The Application of Art-Principles." These, as well as the other parts of the book, are most lavishly illustrated; and when we say that the pictures are executed by the skilled hands of American draughtsmen and engravers, we can scarcely give them higher praise. Dr. Wilson is a thoroughly honest book-producer. He does not take the ideas of others and put them into his own words as original (!) matter, but he gives the matter in its original form, together with the name of the writer who happens to be responsible for it. And here, we think, lies much of the value of the work, for, as the story is unfolded, we listen, so to speak, to the comments of those who have gone over the same ground, and who have, in many cases, made a close study of the particular matter under discussion. If we may add a "hint" to Dr. Wilson's wonderful collection, it will be in the form of a recommendation to our readers to purchase the work forthwith.—T. C. HEFORTH, F. C. S., in the *Camera*, London.

*Wilson's Quarter Century in Photography*, a splendid volume, just from the press. The book is profusely illustrated, and same size as *Photographics*, but containing more pages, and, no doubt, will have a more extended sale. The price is the same (\$4), it covers more ground, and is up to a later date. Dr. Wilson is a fluent writer, and a man of extended experience, whose labors have been long and arduous in compiling this work. It takes the reader from the very beginning, even from Adam himself, as the "first photographer," to the present time, explaining all the different processes connected with our art. Surely, here is a good deal for a little money—a complete library within itself. Our space is too limited to quote some of the good things in this work, for they are all good; therefore, our advice is to send to your stockdealer, or

direct to the publisher, and secure a copy before the edition is exhausted.—*St. Louis Practical Photographer.*

I was greatly pleased with *Photographics*, but think you have exceeded yourself in this your last effort at bringing both instruction and pleasure to the lovers of our art-science. Your hints are of the greatest practical value, while your selections have been made from the best thoughts of the best workers known to photography, thus making a work of the greatest practical value to the artist photographer. I am especially pleased with Chapters IX. and X., a careful study of which will not only be of great help to the tyro in art matters, but will give pleasure to the artist of widest experience and culture. I wish you abundant success with it, even greater than with *Photographics*.

D. J. SMITH,  
Detroit, Mich.

[Translated for *The Philadelphia Photographer.*]

### DIVERS FORMULAS FOR DEVELOPING GELATINO-CHLORIDE OF SILVER PAPER PRINTS AS SHOWN AT THE FLORENCE EXHIBITION.

THE quantities are, in each case, calculated for one ounce (31 grammes); three parts of each being used with one part of a solution of sulphate of iron of 9 grammes (140 grains) for 30 grammes (1 ounce) of water.

To a solution of 140 grammes (4 ounces 4 drachms) sulphate of iron, in 480 grammes (15 ounces 3 drachms) of water, add, according to the divers tones that it is wished to obtain:

#### *Slate Blue.*

1.—One part of the above solution to three parts of a solution of citrate of ammonia.

#### *Brownish Green.*

- |  |             |
|--|-------------|
| 2.—Citric Acid . . .                             | 180 grains. |
| Carbonate of Ammonia . . .                       | 50 “        |
| 3.—Citrate of Ammonia . . .                      | 250 “       |
| To which Chloride of Sodium has been added . . . | 2 “         |
| 4.—Citrate of Ammonia . . .                      | 250 “       |
| Chloride of Sodium . . .                         | 4 “         |

#### *Brown Sepia.*

- |                             |             |
|-----------------------------|-------------|
| 5.—Citrate of Ammonia . . . | 250 grains. |
| Chloride of Sodium . . .    | 8 “         |

#### *Light Reddish Brown.*

- |                             |             |
|-----------------------------|-------------|
| 6.—Citric Acid . . .        | 120 grains. |
| Carbonate of Magnesia . . . | 76 “        |

#### *Warm Gray.*

- |                                |             |
|--------------------------------|-------------|
| 7.—Citric Acid . . .           | 120 grains. |
| Common Carbonate of Soda . . . | 205 “       |

#### *Dark Reddish Brown.*

- |                           |             |
|---------------------------|-------------|
| 8.—Citric Acid . . .      | 120 grains. |
| Carbonate of Potash . . . | 117 “       |

#### *Bluish Green.*

- |                         |            |
|-------------------------|------------|
| 9.—Citric Acid . . .    | 90 grains. |
| Carbonate of Soda . . . | 154 “      |
| Citrate of Potash . . . | 24 “       |
| Oxalate of Potash . . . | 6 “        |

#### *Red Sepia.*

- |                             |            |
|-----------------------------|------------|
| 10.—Citric Acid . . .       | 80 grains. |
| Carbonate of Soda . . .     | 135 “      |
| Citrate of Potash . . .     | 12 “       |
| Oxalate of Potash . . .     | 3 “        |
| 11.—Citric Acid . . .       | 108 “      |
| Carbonate of Magnesia . . . | 68 “       |
| Carbonate of Potash . . .   | 12 “       |
| Oxalate of Potash . . .     | 3 “        |

#### *Yellow Sepia.*

- |                             |            |
|-----------------------------|------------|
| 12.—Citric Acid . . .       | 40 grains. |
| Carbonate of Magnesia . . . | 25 “       |
| Citrate of Ammonia . . .    | 166 “      |
| 13.—Citric Acid . . .       | 120 “      |
| Carbonate of Magnesia . . . | 72 “       |
| Carbonate of Ammonia . . .  | 72 “       |
| Chloride of Sodium . . .    | 8 “        |

#### *Blue Black.*

- |                             |             |
|-----------------------------|-------------|
| 14.—Citric Acid . . .       | 120 grains. |
| Carbonate of Magnesia . . . | 15 “        |
| Carbonate of Ammonia . . .  | 70 “        |
| 15.—Citric Acid . . .       | 120 “       |
| Carbonate of Magnesia . . . | 38 “        |
| Carbonate of Ammonia . . .  | 44 “        |
| 16.—Citric Acid . . .       | 90 “        |
| Carbonate of Magnesia . . . | 57 “        |
| Carbonate of Potash . . .   | 54 “        |
| Oxalate of Potash . . .     | 18 “        |
| 17.—Citric Acid . . .       | 72 “        |
| Carbonate of Magnesia . . . | 45 “        |
| Citrate of Potash . . .     | 54 “        |
| Oxalate of Potash . . .     | 18 “        |

18.—Citric Acid . . .	60 grains.
Carbonate of Magnesia . . .	38 “
Citrate of Potash . . .	68 “
Oxalate of Potash . . .	22 “

*More Intense Blue Black.*

19.—Citric Acid . . .	30 grains.
Carbonate of Magnesia . . .	18 “
Citrate of Potash . . .	100 “
Oxalate of Potash . . .	33 “

*A Lighter Blue.*

20.—Citrate of Potash . . .	136 grains.
Oxalate of Potash . . .	44 “

According to the use of one or the other of the above formulas, it is possible to obtain the most varied tones—grays, blues, greens, reddish browns, sepia, gray blacks, etc.

At the Florence Exhibition, Mr. Corbin exhibited a frame containing twenty prints corresponding to the twenty above formulas; it is thus possible to judge by comparison of the value of each tone, and to select the formula for obtaining the desired color.—*Paris Moniteur.*

[Our readers are not as yet “up” on the above process, but—they soon will be, when above will be valuable for reference.—Ed. P. P.]

## THE TOTAL SOLAR ECLIPSE OF 1886.

THE following brief account is penned in order that it may be published in time to be of service to the observers of the eclipse of 1887.

It was found that by using rapid gelatine plates an exposure of one or two seconds was sufficient to show the details of the inner corona satisfactorily with an ordinary telescope-lens. With a portrait-lens the ratio of whose aperture to its focus was as one to five, one or two seconds' exposure showed the outer corona satisfactorily, as far as a distinct falling-off place in the light. This was at a distance of from 15' to 30' from the limb of the moon. Beyond that the light was very decidedly fainter, and was shown best by exposures with lenses of the same ratio, of from eight to forty seconds. This light extended to from one to

two degrees from the moon's limb, was very faint, and seemed analogous in character to the zodiacal light. It was clearly not a mere reflection of the corona in the camera-lenses, as it did not extend over the moon's image, where it would, in that case, have been brightest. Measurements of the actinic brightness of different portions of the corona were made, which will appear in a subsequent paper.

The corona showed the usual short rays of light proceeding from the sun's poles, and from the southwestern quadrant a very conspicuous ray, appearing like a hollow cone, projected to a distance of some twenty minutes of arc. On one of the long-exposure plates it was noticed that this was crowned by a curious fountain-like structure—three fine jets, about a minute in diameter, shooting up 35' to 40' from the moon's limb, curving round, and falling back toward the sun. On closer inspection, seven other jets were counted, all more or less well marked, and all proceeding from the summits of bright rays of the corona. Some of these returned toward the sun, but the majority faded away at about 30' distance from the limb. Unfortunately, only one of the plates was taken on a sufficiently large scale, and with sufficient exposure, to show this phenomenon, and the whole appearance may, therefore, be due to defects in the gelatine film of that plate. But, as the markings are certainly on the plate, I have ventured to describe them; the more readily, as a somewhat analogous appearance, though on a smaller scale, is represented in Mr. Ranyard's “Observations made during Total Solar Eclipses” (*Memoirs of the Royal Astronomical Society*, xli., plate x.)

Passing from the corona to the prominences, a number of them were seen near the equator, on both sides of the moon; but the most conspicuous one of all was situated in the northwestern quadrant. It extended to a height of about one hundred thousand miles, and had apparently a somewhat spiral structure. The spectra of the various prominences were shown very clearly by the prismatic camera. In the equatorial ones the hydrogen and H and K lines were prominent, superposed on a background of con-

tinuous spectrum; but in the large prominence the hydrogen lines were all absent, confirming Professor Tacchini's observation of its invisibility both before and after totality.

The H and K lines, however, were strongly marked; and it seems quite probable that numbers of prominences may escape ordinary observation by the spectroscopic method, merely because they shine only by the actinic radiations, and are hence invisible to the eye. The remedy for this difficulty would be, either to use a fluorescent eyepiece, or better, to photograph them, instead of trusting merely to eye-observations. The position of the maximum density in the continuous spectrum of the prominences was found to be quite different from that of the corona. In the prominences and in the sun it is found to be not far from the G line, while in the corona it lies between G and F. This may indicate that, besides the gaseous constituent, the corona is composed also of incandescent solid or liquid matter, which, while cooler than the sun, still shines by its own light. In this case, the position of the maximum might give us a hint as to the temperature of the corona.

Photometric measurements of the general light during totality were made, which, roughly stated, indicate a brightness equal to one candle at about 29 inches or 73.5 centimetres distance. Previous observations by Mr. W. O. Ross in 1870 had given 18.5 inches; and by Dr. J. C. Smith in 1878, 51.25 inches. It had been intended to make some observations on the actinic power of the sky during the eclipse, but, unfortunately, the plates reserved for this purpose were found to have been spoiled by the excessive moisture of the Grenada climate; so that no result was obtained. In some of the longer exposures, however, where a large field was used, portions of the landscape appeared upon the plates, showing that considerable actinic radiation was given out even during the total phase.

A large number of persons observed the shadow-bands, which appeared before and after totality. The general result of their observations indicated that the bands were about five inches wide and eight inches

apart, that they were colored like the spectrum, and that they moved with a velocity comparable with that of an express train; at all events much faster than a man could run. Before totality the bands lay N. 12° W. and S. 12° E., and travelled West: after totality they lay N. 60° E. and S. 60° W., and travelled northwest. The wind during totality blew from the point S. 35° E.: during the partial phases it was blowing from six to nine miles an hour, but fell during the three minutes of totality to between two and four miles. The thermometer ceased rising as totality approached, but afterward rose more rapidly. The extent of the effect produced on it amounted to 0.4° C. This figure may seem small, but it must be remembered that the fluctuation between sunrise and noon in these tropical islands in the summer season seldom exceeds two or three degrees.

In general results, the expedition may be said to have proved successful, although one of the most important instruments, the forty-foot photo-heliograph, failed to work, through lack of sunlight previous to totality, which prevented the application of the necessary adjustments to the mirror. It is hoped, however, that this omission will be in part rectified at the present eclipse, as a similar instrument, even better equipped, has been sent in charge of Professor Todd to Japan; and, if the weather favors some excellent pictures should be the result.—  
PROF. W. H. PICKERING in *Science*.

HARVARD OBSERVATORY, CAMBRIDGE, JUNE 23,

## A WONDERFUL PICTURE.

A DAGUERROTYPE OF CINCINNATI TAKEN  
IN 1848.

A daguerrotype view of Cincinnati taken by W. S. Porter, from Newport, Ky., in 1848, is now on exhibition at Mr. Landy's gallery, corner of Fourth and Plum streets, where everybody wishing to see it can enjoy that pleasure. This picture is eight feet long, and on silver plates joined together, thus forming a panoramic view of Cincinnati's entire Ohio River front, and to-day this great picture stands unrivalled for truthfulness and beauty of detail, and is as

perfect as when it came from the artists' hands, which proves, without a doubt, its perfect durability. The names of the numerous steamboats that line the river front, and signs on the business houses, are distinctly portrayed.

The spire of the old Second Presbyterian Church that stood on Fourth street between Vine and Race looms up in the distance, and the clock dial on it is in the picture, not as big as a pin's head, yet, with a magnifying glass, one can tell the time of day.

All Cincinnatians ought to be proud of this great picture, and it should have a place of prominence in the Art Museum, or some other public institution, that it may be seen, not only by this generation, but by those following, for time has already proven its perfect durability. It was exhibited at the first Exposition ever held in this country, which was at Philadelphia, in the Franklin Institute, in 1849. The first and highest premium was awarded it. The same year it took the first premium at the Maryland Institute of Baltimore. It was taken to the World's Fair, held at London, England, in 1851, by Messrs. William and Thomas Powell, of Cincinnati, and there remained until that exhibition closed, when it was highly commended by the English juries, an account of which is given in their reports.

It is a wonder that so stable and perfect an art should have been laid aside to make room for the paper picture, which is neither as lasting nor as truthful. What would the immortal Daguerre say could he step forth from the spirit-land and see his great invention set aside, and its place occupied by an inferior art? This picture can never be produced again, therefore, it is of great value, and should prove of great interest to Cincinnati.—*Times-Star*.

### QUESTIONS TO CRAFT.

IN order to diffuse information of value to many of our readers who are continually inquiring—those who have not the advantages of conventions, or even contact with other photographers, once more we propose the questions which follow to our more privileged readers, and ask a generous response to them, for publication, for the sake

of the real good which such action will accomplish:

1. Are you making large portraits direct in the camera, *i. e.*, using a larger lens than 14 x 17, with large dry plates? If so, what is your method of lighting and manipulation, and your experience as to the quality of your results compared with enlargements from small negatives?

2. Do you obtain as satisfactory results, in portraiture, with very rapid plates, as you do with slower ones?

3. What is your most successful method of development of rapidly exposed plates?

4. Have you found an increase of business and profit with the increased facilities for making large work more expeditiously adopted by you?

5. What has been your experience, both in practical results and in the acceptance by the public, of bromide enlargements?

6. What with platinotype prints?

7. Do they increase the revenue from your stock of negatives?

8. Please detail some of your experiences in making pictures of children.

9. In printing dry-plate negatives wherein does your treatment of them vary from your practice with wet plates?

10. What variations do you make in your manipulations in cold weather from your practice in the mild seasons?

11. What are the prospects for the coming year?

EDWARD L. WILSON,  
853 Broadway, New York.

### FROM THE CANADA SIDE.

1. I am not making anything larger than 8x10, and this size is principally family groups. Develop the same as the smaller plates.

2. I prefer plates of the ordinary rapidity, as I can get better results.

3. I do not use them.

4. Yes, I have made all my large work with the solar camera.

5. Bromide enlargements take well with my customers. They like them better than the solars.

6. I have had no experience with them.

7. My stock of negatives is a constant source of revenue to me.

8. My experience with children is satisfactory, both to myself and customers. I first get the confidence of the little ones, and, after everything is arranged, I take them into the operating room and have the negative before they know what they came for.

9. No difference.

10. During cold weather I keep the silver bath warm, and have no trouble in silvering the paper. I also warm the developer, as I find it works better than when cold.

11. The prospects for the balance of the year are good, as my trade is principally with the farmers. They report that the crops are excellent, never better, and can look forward to a brisk trade in the fall and winter months. The last picture in the PHOTOGRAPHER I think the best of all. It carries me back to my boyhood days on the farm—how we boys used to think there was nothing to equal threshing time, as we went from farm to farm, helping the neighbors. I must congratulate Mr. Orr for securing so fine a subject.

R. R. SALLOWS,  
Goderich, Ont.

### THE WORLD'S PHOTOGRAPHY FOCUSSED.

THE London Photographic Society announces that its annual exhibition will open October 1st, and that all exhibits should be received not later than September 21st. In this connection some ameliorations in the regulations of the Society have been made, which will be finally decided upon soon.

THE MANCHESTER AMATEUR SOCIETY.—This Society has the intention of publishing a quarterly journal devoted to the transactions of this prosperous institution. The journal will be commenced as soon as the requisite number of subscribers to guarantee the first expenditures is obtained. Many of the provincial societies are now making photographic excursions in the country, taking their vacation as it were.

PHOTO-MICROGRAPHY.—At the last meeting of the London Photographic Society Dr. Edgar Crookshank read a paper on photo-

micrography and its value in biological investigations. The author asserts that he was well satisfied with isochromatic plates; he made use of the best apparatus, and for the smallest objects he dyed them with aniline brown. In some cases he made use of enlargements of 4000 diameters, which enabled him to satisfactorily reproduce some bacteria swimming in the blood of a rat, alongside of the blood corpuscles.

METEOROLOGY OF 1887.—The meteorology of 1887 in London is very remarkable, and the same may be said of a large portion of Europe. After a greatly prolonged spring, which gave rise to a great many cases of pneumonia and other diseases of the heart, we have had a very long dry spell. Since thirty days it has not rained in London; in several provinces of the west and northwest the springs of water failed more or less, and in the streets water is sold which has been brought from a distance. For the month of June the barometer was so stationary that its tracing on the daily diagram marks almost a *straight line*.—DR. PHIPSON.

THE BIRMINGHAM PHOTOGRAPHIC SOCIETY.—At this Society Mr. J. Osborne read an interesting paper called "Photographic Souvenirs." Mr. Osborne has practised photography, as an amateur, since the days of Daguerre and Talbot. He familiarized himself, by turn, with all the processes, from Daguerrotypy and callootypy to the gelatinized plate of our day. The author claims for Dr. H. M. Morris, of Birmingham, Physician and President of the Photographic Society of that city, the invention of the first process with dry plates.

PHOTOGRAPHS OF LIGHTNING.—The Royal Meteorological Society is desirous of obtaining the photographs of flashes of lightning, as it is believed that a great deal of research on this subject can only be pursued by means of the camera. The Council of the Society intimate that they would esteem it a great favor if assistance were afforded in this matter either by sending copies of any photographs of flashes of lightning that may have been already taken, or by endeavoring to



procure them, or to interest others in the work. It may perhaps be well to mention that the photography of lightning does not present any particular difficulties. If a rapid plate and an ordinary rapid doublet with full aperture be left uncovered at night during a thunderstorm for a short time, flashes of lightning will, after development, be found in some cases to have impressed themselves upon the plate. The only difficulty is the uncertainty whether any particular flash will happen to have been in the field of view. As the thunderstorm season is now approaching, many photographers may be found willing to take up this interesting branch of their art.—*Iron (London).*

### PHOTO ENGRAVING.\*

WHEREAS, in Germany, the customary processes of chemigraphy and photo-chemigraphy for the production of relief print plates, belongs exclusively to the class known as zinc-etching, in North America another method, called photo-engraving, is largely used to accomplish the same purpose. This process is said to possess some advantages over our zinc etching and other methods, since it requires less skill in the exercise of the separate manipulations than photo-chemigraphy, while it is by no means inferior in its results to the German process. A description of this method may, therefore, not be uninteresting to many of our readers, and may perhaps lead to a practical trial of it.

The principal difference between photo-engraving and chemigraphy is, that in the former the final relief of the print-plate is obtained not by etching but by forming or shaping.

The fundamental principle of this process is based upon the known peculiarity (property) of a chrome-gelatine plate, when exposed to the light the exposed places are insoluble. Lay one of these plates in cold water, and only the parts not lighted, and thus left soluble, absorb the water and swell (literally rise), whereas, even these parts

would be washed out in hot water. In both cases, then, a relief is formed; the first time the bright spots of the photographic negative, under which the plate is lighted, form the depressions, the other time the elevations.

Concerning the production of proper photographic negatives for this purpose, we cannot in this place speak, as it is the same as is required in every other kind of reproduction process, and is explained in every photographic hand-book.

For reproduction by means of the photo-engraving process, drawings are as well adapted as water-colors or colored copies and photographic natural pictures. For the making of the drawing the following rules are to be observed:

Drawings which are to be multiplied by means of the rising process (see above) need never be produced reversed—*i. e.*, exchanged right with left; while those that are meant for the washing-out process should be made reversed, because thereby the later production of an inverted negative is spared. A fine soft pen should be used, very black ink and white paper with smooth surface. Fine drawings should be prepared twice the size of the desired reproduction; less fine—half the size larger, and drawings intended for ordinary newspaper print and the like, of the same size.

For the rest, the rules observed in other processes of the kind serve here also.

For the production of the chrome-gelatine relief, the washing-out process is best adapted, because by this means an extraordinary degree of fineness and sharpness can be obtained, and the process, by exact attention to directions, is simpler than by the rising up process. Of the gelatine purchasable in cakes or rolls (the soft kind), mix 100 gr. with 400 c.cm. of water in a dish, warm this over a spirit lamp up to 40° C., and let it soak forty-eight hours, stirring occasionally. After this add to it

White sugar,	.	.	25 gr.
Glycerine,	.	.	10 c.cm.
Ammoniac	.	.	5 c.cm.

Color this mixture with fine lamp-black, but only so much, that when the mixture is spread out on a glass plate, it (the plate) still

\* Translated for P. P. from "Die Graphische Künste."

remains transparent, and add to it finally, stirring constantly,  $7\frac{1}{2}$  gr. of double chrome acid potash dissolved in water. Filter this for some time through linen cloth, bring the vessel containing the mixture to a drying-box, the temperature of which must be brought up to  $55^{\circ}$  C., and let it stand therein a quarter of an hour.

Meanwhile the glass plates to be covered have been sufficiently levelled by means of a water-gauge, and spread over with one per cent. normal collodion, without letting this run off. For a plate of  $12 \times 15$  cm. about 25 cm. collodion are sufficient. These plates, which must be dried in the meanwhile, should be covered now in the dark-room, with the above light-sensitive mixture, which, for this purpose, had best be filtered into a jug-shaped vessel with a spout. Keep the vessel warm, so as to keep the gelatine solution in a fluid condition, and cover the plates, without letting it run off. The given quantity of the mixture for six or eight plates is from  $12 \times 15$  cm. The dark-room in which the plates are allowed to cool (literally "stiffen") must show a uniform temperature of about  $22^{\circ}$  C. In two or three days, according to the arrangement of the room and the weather, the plates are dry. If one wishes to dry them more quickly, put them in a small wood-frame, in which they need only lie on their sides and lay them with wet side down in tin boxes, the bottom of which is strewn with chlorcalcium.

When the plates are dry their edges can be cut through with a penknife and the plate drawn away. Bring the collodion side in contact with the photographic negative, and lay both in a copying-frame such as photographers use for printing their pictures.

Care must be taken that the contact is an inward one, and, to further this, a sheet of caoutchouc should be laid back of the paper pad of the frame. The exposure lasts, in direct sunlight, fifteen to twenty minutes; in dispersed light, of course, it is longer. Much depends upon proper exposure, because when the exposure is not sufficient the lines of the picture wash out, and when, on the other hand, the exposure is too long, too many details are brought out. Some practice is necessary in this respect, and one

soon learns the correct time; moreover, the directions on the outside of the gelatine leaf can be followed in this matter; as soon as the details of the picture can all be perceived the frame should be taken away. It should be opened in the dark-room, the gelatine foil taken out and laid with the collodion side downward, upon a strong glass plate previously spread over with caoutchouc solution. For the development of the picture, which must now be undertaken, a can with lukewarm water is used, and a so-called washing-out brush. The brush is dipped into the water and the gelatine foil streaked over with it in the direction of the lines of the picture. This is repeated several times, and the leaf (foil) rinsed thoroughly with water, so that no gelatine (which would fill up the details) shall be left on the plate. Develop until the gelatine begins to be wrinkled, then rinse the leaf with cold water and lay it in a bath of alcohol, which absorbs all the water out of the gelatine and straightens again the lines made crooked by the wrinkling of the gelatine.

The foil or sheet should stay in this bath about fifteen minutes and then be put away to dry. When it is quite dry it should be laid upon a 5 mm. strong zinc plate covered over with a thick solution of shellac, and all the air found between the gelatine and the zinc carefully pressed out with a caoutchouc squeezer. After this operation the edges of the gelatine leaf must stick fast to the zinc. It is then allowed to dry and a proof taken, and the sheet (which after the development shows a very weak relief) is then sent to the galvano-plastic artist, who shapes it. He makes first an impression in the finest alabaster gypsum (or plaster of Paris) and casts this then with the usual allowance for foundry by means of a particularly constructed casting-mould. Handwork for retouching finished galvanos is ordinarily required only to a small degree.

We have heretofore mentioned only reproductions of subjects in line or point, then of drawings, wood-cuts, engraving, etc. Photo-engraving, however, as we said before, adapts itself to the reproduction of photographic pictures of nature or otherwise toned copies. For this purpose the chang-

ing of the connected tone surfaces into a system of lines or points is necessary, because the printing press is not in the condition to print tones. For this purpose different processes can be used, but in North America the process invented by Mr. F. E. Ives, of Philadelphia, is mostly used—notably by the two important institutions of this kind—Moss Engraving Co. and Crosscup & West.

Accordingly a chrome-gelatine relief is first produced in the above-described way by washing out, and after this an impression taken in plaster of Paris or wax. The white surface of this cast is then separated into lines and points by means of an elastic stamp, divided into parallel lines and points by con-

ical cuts, which is blackened and pressed upon the white surface of the cast. By this means the recesses of the casts are left free from the lines or points, the middle recesses receive the ink in parts, while the elevations receive it completely. And now to obtain a reprint of this blackened surface without being obliged to photograph again, it should be covered over with red collodion, which the printers' ink penetrates without washing it away. After the drying the cast should be moistened with a solution of gelatine and acid (?) water, then the collodion covering drawn off, and exposed like a photographic plate in the copying frame. This gives a negative in which all the half-shades are opened.

## Editor's Table.

THE PHILADELPHIA PHOTOGRAPHER is growing better and better as its years accumulate. *Go on!* E. M. VAN AKEN, Elmira, N. Y., over twenty years a subscriber.

I LIKE your journal better than any other. C. W. DERSTINE, Lewistown, Pa.

SCOVILL'S August novelties are for sale by all dealers as follows: "The American Scholar's Complete Outfit;" "Registering Slides;" "Light Weight" holders and the "Howard Albums" for mounting of photographs.

TRY Brown & Goldsmith's "Preservative for Ready Sensitized Paper." C. H. Codman & Co., B. French & Co., Geo. Murphy, and Buchanan, Bromley & Co., are the agents.

MR. S. R. STODDARD, Glens Falls, N. Y., has just issued a new edition of his interesting brochure on "The Adirondacks."

THE fattest and best baby received since our last comes from Mr. E. R. SHERMAN, operator for Gillmore & McIntyre, Putnam, Conn.

THE *Manufacturing Jeweller* for July contains a fine photoengraving and a sketch of the life of Mr. H. F. CARPENTER, of Providence, R. I. He is the well-known assayer and refiner of photo-wastes—one of our former advertisers—and

treasurer of the New England Manufacturing Jewellers' Association, for years. The *Jeweller* says: "Refining to Mr. Carpenter is a school and it is his constant aim and study to make improvements, and he has made many in the business during the past twenty-five years. In the course of the last year three very important improvements have been made by him: the first being a special method for refining dry-plate emulsions, whereby he is enabled to do very large quantities in a very short space of time; the second a special arrangement for refining metals, whereby he can refine from 1500 to 2000 ounces of metal per hour; and last but not least the process whereby he is enabled to get out chemically pure gold for \$1.10 per dwt., an accomplishment heretofore considered impossible. Common sense teaches anybody that pure gold is better for jeweller's use than impure gold, and for coloring and plating of goods Mr. Carpenter has proven himself a benefactor by finding a process for getting the gold out at that price.

A TYPE error occurred in "Our Picture" remarks on "Brunhild," last issue. Page 470, near the foot of the second column please read: Ratio of aperture to focal length 1:4 or  $\frac{F}{4}$ , instead of 1:3 or  $\frac{3}{4}$  as it is.

"FREAKS" at the fire of Messrs. E. & H. T. ANTHONY & Co., were not wanting. When a

photographer asks an agent to name a rate for his risk, the wise underwriter swells all up with visions of explosives and inflammables and fire-creators, such as ether, alcohol, gun-cotton, etc., and the rate expands accordingly. At the late fire some funny incidents proved how unreasonable such theories are.

A large case of bottled ether received the night before was found amid the charred remains of cameras, tripods, etc., unharmed. Some bottles of ether thrown into the street, fell there, unbroken. Paper boxes containing gun-cotton were found with their corners burned off, but unexploded. A bottle of varnish caught fire and was thrown flaming into the street. It caused a stampede among the crowd. When some of the firemen who had imbibed the "high insurance idea for photographers" heard they were then at a "fire in a photo-shop" they fell and were carried away insensible.

THE four-page inset of the Blair Camera Co. should be read by everyone interested in the use and purchase of a camera. As one of the results of the late convention a "Chicago branch" of the Blair Co. has been established.

MR. CHANDLEE, of Quincy, Ill., has favored us with a very effective picture—combination printing—illustrating the 4th of July balloon ascent of T. S. Baldwin and his leap attached to a parachute when 2000 feet up in the air. Also a portrait of Mr. Baldwin and some characteristic studies of the people who looked on. All are excellently done.

*Photographic Printing Methods*, by Rev. W. H. BURBANK, Scovill Mfg. Co., publishers. Royal octavo, cloth, fancy gilt, \$1.00. An agreeable surprise awaits the purchaser of this book. Instead of being 125 pages, it is 220 large pages. And instead of covering only the every day methods of silver, and perhaps "blue" printing, it includes and involves every known method of printing photographic pictures upon all sorts of materials and surfaces. The author's extensive knowledge of his subject, his power of keen discernment, and his very apparent enthusiastic love for the labor, has enabled him to give us a book for which a niche in our literature was waiting, and which well fills and ornaments the niche. He has drawn from all sources for his points, and like the honest book-maker that he is, has manfully credited all. He has had the coöperation of Mr. W. I. L. ADAMS and Dr. C. EHRMANN of the

*Photographic Times*, and surely they have produced a most acceptable book, well worth double its price. It should have a large and ready sale. Please see the new advertisement.

WE have received from Mons. GAUTHIER-VILLARS, Paris, the publisher, the following works (in French), "Lighting Photographic Portraits," sixth edition, by C. KLARY. "Photography Without a Lens." Applications to panoramic views, stereos, 18mo. with specimen plate, price 1 franc 75 centimes, by Mons. COLSON.

PHOTOGRAPHS of the *World's* balloon ascension. Mr. G. CRAMER has favored us with several prints from his negatives of this late ascent from St. Louis, which are remarkably fine. The balloon, before, and after the ascent with the large expectant crowd surrounding, makes a fine subject. We have the following details from our old friend Mr. R. BENECKE who made the exposures:

The negatives were taken with a Euryscope about 12 inch focal length, 1 inch stop  $\frac{f}{12}$  and exposed à la Dr. Vogel, viz., passing a blackened piece of thick cardboard with a hole about 2 by 4 inches cut out, in front of the lens. As you see it worked very well and the expenses of the shutter were not even five cents. I had to resort to some such improvised plan as I had no time to get a regular shutter made to the lens. When I took the "start" the box with the four gentlemen in was about 10 feet from the ground, and I am sorry that I did not wait half a second longer, when the box would have been against the sky.

I watched them (the four gents) for quite an hour through my telescope, and could see Mr. Doughty making exposures, but with what success I have not learned. Mr. Doughty used Cramer lightning plates.

THE works of JOSEPH BURNET. We have in preparation the reproduction of three of the works of this greatest of art teachers, namely, "An Essay on the Education of the Eye;" "Practical Hints on Composition," and "Practical Hints on Light and Shade"—all three to be bound in one volume and facsimiles of the superbly illustrated originals (by the Photogravure Co.) in cloth and gilt. A full description presently.

THE Chicago Convention is a thing of the past, a continuance of particulars in our next.





LULU FARINI,

CAPE-TOWN, AFRICA.

BRIDGEPORT, CONN.

THE  
**Philadelphia Photographer.**

EDITED BY EDWARD L. WILSON.

Vol. XXIV.

SEPTEMBER 3, 1887.

No. 305.

**INTENSIFYING GELATINE  
PLATES.**

BY JEX BARDWELL.

IN the matter of intensifying gelatine plates I find that when using Carbutt's "B" and Cramer's 15° plates I can always get a good printing negative with any reasonable degree of exposure (speaking of landscape photography), but when using quick plates, and I do what may be termed drop-shutter work, it is sometimes quite a task to work a plate up. I can always succeed with such plates in getting the required amount of detail, but sometimes very thin. I then go back to old times, and do as I recommended in wet plates under the same circumstances, for instance: First fix the plate and *thoroughly wash* (I do not recommend alum when using this process), *then dry* (this is to be remembered sure), then use a weak solution of bichloride of mercury and drop the plate into it at once, so as to prevent any lines. The *moment a change of color* takes place, at once take out and wash well, and then flow over the plate, or rather immerse the plate in, a weak solution of iodine in iodide of potassium; this will convert the skin of the film (for it should go no deeper) into a sort of a dirty-green color, that will give the negative an excellent printing quality, and, so far as I find, is permanent. The main object is to confine the change to the skin of the film and prevent its going too deep into the body of the negative.

**NOTES FROM LONDON.**

BY T. C. HEPWORTH, F.C.S.

EVERY photographer, worthy of the name, must be a lover of art—by which I mean that he will take delight in going through a good gallery of pictures, oil or water-colors, and noting their various excellences. What rich hints in posing and lighting cannot an intelligent man thus obtain from paintings? But artists as a class will not admit, on the other hand, that there is anything to be learned from photography; in fact, the only persons that I have known to be rabid in their abuse of the camera, have belonged to artistic circles. I met such an one a few nights ago. How he did empty the vials of his wrath on my devoted head to be sure. As the editor of a photographic publication, he evidently looked upon me as the disseminator of the blasphemies which he denounced. At length he paused for want of breath, and said, "Come and see my latest work."

I reverently entered his studio, and he paused for a moment before he uncovered the picture, which was on his easel—"There," said he, "Can your patent rectilinear, symmetrical, dickens-knows-what lenses accomplish a work of art like that?" I did not answer at once, for the truth was, I hardly knew what the picture was meant for. "When it is more finished I can better judge of it," I murmured. "More finished!" said he, in a voice of thunder, "It is finished, but the wretched photographs that you are accustomed to, with their finnickin' detail,

have blotted out from your soul the power of appreciating true genius."

I soon found that my artistic friend was an impressionist, and that it was, therefore, useless to bandy words with him. But the next day I sent him a cutting from the *Athenæum*, containing a letter from an artist. This artist is Mr. Armitage, who describes a recent visit of his to the Paris Salon. "I was much struck," says he, "by the great increase of so-called impressionist pictures, and with your permission, I should like to record my impression of impressionism. Let us assume, for sake of argument, that the painters of the new school really give us their honest impressions of nature freed from the hated trammels of school tradition; is it not very strange that there should be such a family likeness pervading all their work? Surely if half a dozen of these thoughtful art radicals agree to eliminate from their painting all beauty of form, all richness of color, and all charm of execution, there would still remain a certain variety in the character of the residuum; but a glance round the Salle Georges Petit, which is at present the headquarters of impressionism in Paris, shows that this is not so. Almost all the pictures might have been done by the same lunatic. The same sickly lilac tone, the same childish drawing, and the same fumbling and unsteady touch pervade them all. It is clear to me that the self-styled naturalists, instead of being (as they fondly believe) the emancipated children of freedom, are the slaves of a narrow, bigoted, and ignoble school."

Now I wonder what my artistic friend will say to these outspoken words from one of his own profession. For my part, I intend, when my work gets slack (when will that breathing time come, I wonder?), to take a real genuine impressionist photograph. It shall be of a lady in a plain frock, a dog-toby collar of large dimensions, holding a big lily in her mediæval hand. I shall purposely rack my lens far out of focus, and give the print from the negative as bilious a tone as it is possible to obtain. This picture, especially if I wear my hair long as well, will, I am certain, bring me fame and fortune.

For a long time I have carried in my

waistcoat pocket a pencil of American origin, which I should be very sorry to do without. It has a picture of your national bird upon it, and is known as the "Eagle Automatic, No. 865." What this number refers to, I have not the smallest notion, but I have discovered a use for this pencil in connection with numbering, which I think is of great photographic importance. In removing some exposed plates from my double-backs, the other day, I took the precaution to number each one in the corner with this same pencil, so that it might agree with the record of the day's work in my note-book. After the plates were developed and fixed I found, to my joyful surprise, that the numbers remained distinct. The solid aniline violet core of the pencil has the effect of rendering any portion of the negative to which it is applied like bare glass, so that every print from such a negative will reproduce its number. It is not difficult to write the numbers backward, when they will appear nonreversed on the prints. Have I awakened at last, to find myself famous, or will the "other fellows" all write to you to say that they have numbered their negatives in this way for untold ages?

[Translated for *The Philadelphia Photographer*.]

## PHOTOCHROMOTYPOGRAPHY.

BY C. ANGERER.

THE idea of reproducing in color pictures and colored objects by means of photochromy is as old as the invention of photography. Niepce de Saint Victor made experiments in this direction. After him Poitevin followed the same investigations; he exposed under colored negatives, or colored images, prepared papers, which gave colored prints; unfortunately these prints were not permanent. Zenker and Flourens, following Poitevin, hoped to obtain a better result, but they were not more successful. Years passed, photography advanced, monochrome printing and heliography were discovered, and, with the aid of these new processes, persevering investigators again took up the original idea of the reproduction by photography of colored objects with their real colors. In 1869, Cros



and Ducos du Hauron used pigments, whilst, on the other hand, Albert and Obernetter, of Munich, had recourse to heliography to solve the problem. Ducos took three negatives of a colored subject, the first through orange glass, the second through green glass, and the third through violet glass. The negative of the orange glass was used for printing in blue, that of the green in red, and that of the violet in yellow. Ducos, therefore, required three pigments; one yellow, one red, and one blue, made sensitive probably by bichromate of potash. Transferring afterward these three clichés to a single support a polychrome image was obtained. Those photographers who are anywise familiar with the monochrome process, or what is called the carbon process, can judge of the difficulties that Ducos must have met with, and understand why it was that the discovery remained dormant. Albert, of Munich, like Ducos, placed colored plates between the objective and the object; but, finishing his prints by a heliographic impression, a method well adapted to this kind of production, he was more successful than Ducos. Paintings and colored objects were in this manner truthfully reproduced. The problem made one step in advance. Photography in color carries in itself an incalculable future when it shall be discovered, as chromo-lithographic and chromo-typographic printing will find in it valuable resources. What the hand of man, however skilful he may be, does not succeed in reproducing exactly, the photographic apparatus manipulated by a skilful operator, will accomplish mathematically and rapidly. By photography it is possible to render with some degree of truth the effects made on our eyes by colors, by printing successively on the same print several plates of a light gray tint, dark gray, and black. On the other hand, experiments have been made by taking detached copies of the different colors, but on each appeared darkened the tonalities of the subject, the filtrations, as is called the play of colors produced by the light of day on natural objects, and which form in the work of the artist the merit of the picture. In lieu of the yellowish, reddish, and bluish reflections of the shadows, of their transparency, we had instead

grays, browns, and blacks. By means of gelatino-bromide of silver plates, copies, called orthochromatic, were recently obtained in which all the colors of the principal image were given with their gradation. The under colors penetrated sufficiently through the underground color—the transparencies—to give to the whole the appearance of a colored photograph. These different processes may, in time, lead to industrial results, but this is not real coloring by the direct method. Among all the processes that have been disclosed, that of M. Vidal seems the best adapted to the practice of photography in color. His method consists in the separate production of the primitive colors. Exposure is in the ratio of the value of each color, and the resulting prints are transferred to lithographic stones. The printing of these transfers is done in the same manner as for chromos. Other photographers have obtained reproductions by rubbing the plate at each impression with colors similar to those of the original, so that the plate may be said to have been colored in advance by hand. This process is called helio-engraving in color. At the present time Messrs. Angerer & Geschl, of Vienna, prepare positives for the actual colors, and obtain by making reiterated copies, plates which they afterward print in color. These plates are of gelatine and zinc, and are finished by chemical agency. On account of the fineness of the lines in the original it is often necessary to make a very fine grain on these plates. The impressions in black or monochromes present but little difficulty, since it is now possible to print from plates, the result of photography, on mechanical presses at the same time as the accompanying text; but polychrome printing requires more preparation, more alteration. The background is first printed, the opaque colors come next, each in its turn. By opaque colors we understand the mineral or metallic colors which are first printed in a compact manner, and which become, as it were, the outline of the image. Before passing to a subsequent color the preceding one should be dry, otherwise the colors would run into each other. Let us suppose that we print red on wet blue, not only will the red show itself imper-

fectly, but a little blue will always become detached on the plate. At the next inking, the rollers will mix this blue with the red, and the result will be, before long, a dirty violet. Desiccation is hastened by adding drying varnish to the colors, or pure siccativ during the grinding. As a rule, paper absolutely white, or of a bluish tint, should not be used for printing; the ivory, chamois, and reddish shades are preferable, especially the first. The paper should not be too thin, the heavy inks with which the flat tints are printed would tear it. It should be chosen of medium strength and only half sized. In order to make good printing it should be done, as in the case of oil painting, that is to say the opaque colors are placed upon a ground, otherwise called a tint. The ground color is composed of two-thirds of powdered chalk, well levigated, and one-third of white lead, rubbed up with medium varnish. The preparation is completed by adding a trace of coloring matter in keeping with the tone to be produced. The machine on which is made the impression of the ground and opaque colors should move slowly, otherwise the plates (which are generally of a large size, and the ink possessing an attraction on account of its strength) might pull off by the rapid motion. On the other hand the paper roughly detached from the plate would in most cases inevitably be torn. The greatest care is necessary in printing the ground and opaque colors. It is an error to suppose that these plates, on account of their plane surface, have but a secondary importance. They are more important than those which come after. The color that these first plates deposit upon the paper must be entirely opaque, which is not the easiest thing to obtain. Should the opaque colors become gritty the image would appear monotonous. Should these colors be diluted the heavy matters of which they are composed would overlay the plates and it would be easy to foresee that the image would be a mere daub. The rauze and other tints of the varnish, which follow after the opaque colors, not finding a solid bed, are imbibed by the paper, grease it, and those that come after no longer adhere. The finished image has a dirty appearance, it has run. The light colors, the azure

colors, transparence, and the varnish are more easily printed than the opaque colors. These colors give to the image the play of light, the shades, the tones and half tones, the transparence, in reality the veritable effects of light. White cannot be added to the transparent colors; varnish is added to weaken them, or a coloring matter to make them stronger, principally lake, because they bear the light without change. When the tones are to be subdued a good varnish should be used. When the tints are to appear ardent, pure, a colorless, clear or fatty varnish should be used, adding to it some siccativ. The choice of the reds requires attention, this color being high priced offers temptations to the fraudulent. They add aniline to it, a color of no value in printing as it fades very rapidly. The adulteration may be very easily discovered by placing a small quantity of the suspected color in a glass or on a paper, and pouring some alcohol on it. The alcohol becomes colored if there is any aniline present, as all aniline colors dissolve in alcohol. To judge at first sight of the gradation of the colors, at times barely perceptible, is almost impossible for a novice. We advise typographical printers interested for the first time with work of this kind to consult a brother lithographer versed in chromo printing. With few exceptions type printers only know the black color. For a long time workmen have entertained an error in saying that in typography the lithographic colors cannot be used. This is true only to the extent of substituting mixtures for mineral colors. In typography, printing is done rather with colored varnishes than with veritable lake colors, and this is why the error is credited; for the lakes can be used for both kinds of printing and they have the advantage of not fading in the light. It is only sienna earth, ochre, minium, umber (the Van Dyck and Cassel browns), which cause difficulties for the typographic printer to replace them by the lakes. The following combinations, however, will perfectly take their place. The Munich or Florence lake—a kind of cheap carmine—mixed with vignette black ink, or cadmium yellow, or calcined sienna earth give a beautiful brown. All the brown shades may be obtained by a judi-

cious mixture of the above substances. Mineral colors are entirely unfit for this kind of printing. They fill up the lines and wear out the plates. All the ultramarine blues are open to this objection. For the whites make use of that known as lithographic white lead, a little siccatine varnish is always added to white lead. For the yellows, that of cadmium is the best kind of chrome yellow. For the reds, carmine, madder lake, rose lake, true vermilion. For the blue, Prussian blue for the dark shades, or green blue; steel blue (Milari blue), for the light shades. The siccatine should be used with prudence; too much siccatine in a color prevents the succeeding ones from adhering. This substance is mixed with a color when it is prepared. Besides the siccatine or the siccatine powder, the siccatine varnish, which rapidly brings about desiccation, is much in favor at present. To 1 pound of color add from 38 to 70 grains of this varnish. In the absence of a siccatine lightly rub the prints with powdered magnesia with the aid of a little tuft of cotton. To substitute pulverized chalk for the magnesia, as is done by ignorant workmen, would be not only to risk the brilliancy of the colors by weakening the shades, but also to prevent the adherence of the next color to the print, without speaking of the injury to the plates.

[The present article is a carefully revised and corrected translation from the *Journal für Buchdruckerkunst*. The article of the German paper was accompanied by two illustrations obtained by the process which we have just described. The printing of these photochromotypographs was done at the Imperial Printing Establishment, at Vinna, and they prove conclusively the practical use that may be made of Messrs. Angerer & Goschl's plates. These gentlemen have been entrusted with the making of the plates for illustrating the work written by the Prince Imperial of Austria, the *History of the Austrian Monarchy*. All succeeded to the complete satisfaction of the heads of the Imperial printing house, who declared that they presented no difficulty in working, that the colors did not run provided a sufficient time was given to dry

after each impression. The plates, after printing, did not show the least sign of injury.—EDITOR P. P.]

## PHOTO ENGRAVING.\*

BY H. SCH.

(Continued from page 511.)

### PART II.




In our first article we described the photo-engraving process by means of the "Wash-out" method. We will now endeavor to explain the second method—the "Swelling" process. The preparation of the drawing, as well as of the negative, is the same for this as for the first method; the difference lies in the preparing of the chrome-gelatine plates, and in their treatment after the exposure.

The following way is most suitable to the purpose: The gelatine necessary for preparing the light-sensitive layer is put on levelled looking-glass plates, or upon well polished, even zinc plates of corresponding size; the latter are recommended for the beginner. The preparing and putting on of the chrome gelatine is the same in both cases. Next, as was mentioned in the first article, 100 gr. gelatine are put in 400 c. cm. cold water, and allowed to soak for about an hour; then this soaked gelatine is placed in an iron cooking pot, and the aforesaid mixture of glycerine, sugar, and ammoniac added to it, stirring, meanwhile, and, finally, the double chrome acid of potash is added, and the pot placed over a spirit-lamp and warmed to 39° C., during which time the gelatine must be continually stirred with a glass rod to insure a thorough mixture of the ingredients. Then the mixture should be filtered (in the dark-room) into a previously-warmed pitcher, and then poured over the well-cleaned zinc plate, which is laid upon a levelled, smooth ice-block. As soon as the gelatine is stiff, the zinc plate is withdrawn, and the gelatine layer is laid in a cool and airy, but thoroughly dry, place, or, as mentioned before, in a tin box, the bottom of which is strewn with chloricalcium. To ascertain whether the layer is

\* Translated for P. P. from "Die Graphische Künste."

dry or not, touch it with the finger; it should not feel sticky.

The chrome-gelatine plate is now placed in the ordinary way in the copy-frame, under the negative, and exposed to the light. In direct sunlight, it will probably be printed in twenty minutes.

The copy-frame is now carried again into the dark-room, opened, and the exposed chrome-gelatine plate laid in a shallow dish, containing enough cold water to just cover the plate. The water should be frequently renewed, so as to completely cleanse the layer from chrome salts. In this way, as we said before, the parts left unexposed absorb the water and swell up in consequence, so that a relief is found. But much depends upon finding the proper length of time to keep the plate in water, for if it remains too long, the swollen lines would be rounded up (about like this ) , so that in the completed cliché only the points of the lines would be printed; on the other hand, if the plate is taken out of the water too soon, the reverse happens, for the lines do not swell enough, and appear somewhat like this . When just the right time has been allowed the lines will have this form . After a few trials, the exact time necessary will be found.

After taking the plate out of water it must be washed off several times, and laid in a solution containing 1 part of chrome alum and 50 parts water, and in this the upper surface of the layer hardens, and becomes polished plate. Then it is rinsed again with water, and laid again with the exposed side upward on a smooth, previously oiled slab. Around the latter a glass frame is placed, such as is used for stereotypes, and which has likewise been oiled.

To form, the finest alabaster gypsum is first used, mixed with water to a thick pap, with some salt thrown in. This pap is poured over the inside of the frame holding the gelatine relief, and a wooden stick is used to beat on all sides of the frame, so as to fill up all the depths of the relief with the gypsum, and the air-bubbles contained in the pap will rise. It is very important that the upper surface of the gypsum mass be exactly even. When this substance is entirely stiff, *i. e.*, hard, the

pouring-frame can be removed, and the plaster of Paris form taken away.

Paraffine or wax can be used instead of the alabaster plaster of Paris, or a mixture of equal parts of these ingredients, but, for the beginner, plaster of Paris is to be decidedly recommended, as it is safer and simpler to work with.

The plaster of Paris form, after it comes off the gelatine relief, is likewise spread over with gypsum pap in the same way as the relief, and then, after becoming hard, it is separated from the first form by means of a large table knife, pushed carefully between the two. If the gypsum mass is quite dry, it is easily separated. Then, over this second gypsum form a metal alloyage is poured, after the manner of stereotypes, and then it is, with some assistance, ready for use.

This assistance consists in the deepening of the high lights. In the swelling process, of course the depths turn out very shallow, and therefore must be cut out after the casting upon the cliché. For this purpose, different shaped gravers are used, similar to those used in wood cutting.

We will give here a very useful process, which is frequently used in America by the artist who prepares the drawings intended for the photo-engraving process. The object to be reproduced is photographed on an enlarged scale, the outline of the picture drawn upon the copy with indigo ink, and then the photographic picture made to disappear by means of a bleaching method, so that only the indigo ink drawing remains, which latter can be reproduced by photographic means to the desired size. As is known, the copies used in chemigraphy must have the same deep-black lines showing upon white background; in the ordinary method of bleaching, however, the ground of the picture, despite all caution, will be yellow, or brownish-yellow, a circumstance which increases the difficulty of making a proper negative. To overcome this evil, the following plan is adopted:

Dissolve 1 part nitrate silver in 3 parts water; pour 3 parts of this solution into a glass, and add to it as much ammonia fluid as will cause the silver oxide, which is formed in the mixing, to dissolve again, and the solution is once more clear. Then the

contents of the glass should be poured back into the first made silver-nitrate solution. Silver oxide is often formed by the mixture of both solutions, therefore, it should be allowed to settle on the bottom of the dish, or else be poured off and filtered. The albumen paper, that is now purchasable, should be allowed to float in this silver bath for about three minutes.

The silver paper is laid in the copy-frame under the negative, and copied long enough to bring out the details of the picture, without having the print too dark; then it is washed with cold water until it is red, and then washed several times under the faucet. After this, a solution of about 100 to 150 grammes fixing-soda is prepared, and just as much double carbonate of soda in a liter of water, and the print laid for ten minutes at the most in this fresh-mixed bath, when it should be washed thoroughly in clean water, and then mounted. Such a copy can be kept in the light only a few days, as it is not fixed sufficiently; therefore, the drawing should be done in indigo ink as soon as the paper is dry after being mounted. After completing the drawing the copy should be spread over with the bleaching material, *i. e.*, a solution of 30 grammes bichloride of mercury in 1 liter alcohol, by which means the photographic picture disappears, and leaves a drawing consisting of deep black lines on an entirely white surface.

### A SEARCH FOR A SUBSTITUTE FOR HYPO.\*

BY ARTHUR H. ELLIOTT, PH.D., F.C.S.

ONE of the most useful discoveries ever made in the art of photography was the fact ascertained by Sir John Herschel, in the year 1819, that solution of sodium hyposulphite dissolves the chloride, bromide, and iodide of silver. When we take into consideration that this salt, although now made in hundreds of tons every year, was then only a laboratory chemical and very little used, we are surprised that Herschel should have thought of using it. But he did use it, and photographers ever since have blessed

him; that is, they have done so, if they got clean prints. But in spite of the fact of the wonderful solubility of the silver haloids in sodium hyposulphite, there are numerous drawbacks to its use, and various other compounds have from time to time been suggested as substitutes for this universal fixer of plates and prints.

Sir John Herschel used other solvents for the silver salts, notably ammonia and solution of common table-salt.

Fox-Talbot also used a strong solution of common salt. But these solvents never entirely dissolved the silver haloids from paper, and the white parts of the picture gradually acquired a blue color, which, Talbot said, was not unpleasant, probably because he could not do any better. Robert Hunt kept some of these salt-fixed pictures for eight years, and found that they changed very little, except the blue tint acquired by the white portions.

In regard to the use of ammonia, it was found to be a good solvent for the silver haloids, but it also attacked the picture, and there was danger of destroying it completely.

Among other solvents used by the early workers in photography is potassium bromide, which was employed by Fox-Talbot and strongly recommended by him. Gustave le Gray, of Paris, used this solvent in a bath containing 360 grains in a pint and three-quarters, the fixing taking at least three-quarters of an hour; and he says it is better to wait two or three hours. Le Gray also mentions the addition of ammonia to the fixing bath of sodium hyposulphite, and recommends one fluid-ounce to every quart of bath, which has a strength of about one in ten. He says this addition gives very pure whites; but the pictures were not permanent.

During the last year or two the question of using some other solvent for the silver haloids used in photography has again come up, and two substances have been tried; sodium sulphite by Captain Abney and ammonia by a Scotch photographer, whose name has escaped me. In the case of the sulphite of sodium it was found to be too weak a solvent to use as a substitute for hyposulphite, although Captain Abney placed on record his work with it, and made

\* Read at the Chicago Convention.

table of its solvent power, which was published in the journals.

Thinking I might find something interesting in this question of the solubility of the silver haloids in various chemical solutions, I have made a number of experiments which I desire to place on record. Although I have not been able to find a chemical compound that will supplant sodium hyposulphite in the fixing bath, yet I have experimented with materials that are solvents of the silver haloids, and this in no mean degree. In every scientific investigation the failures are often of as much importance as the successes, and with this idea in my mind, I beg you will accept with charity this record of imperfect work done in the spare hours of a life that is full of engagements and calls to duty.

In the first place I made a solution of silver nitrate of such a strength that one cubic centimeter of it would give 0.01830 gramme of silver bromide, 0.02290 gramme of silver iodide, or 0.01396 gramme of silver chloride, according as the precipitant was bromide, iodide, or chloride of an alkaline metal (potassium or sodium). To put this in other words, every hundred parts of the solution would give 1.830 parts of silver bromide, 2.290 parts of silver iodide, or 1.396 part of silver chloride. The first series of experiments was with silver bromide.

Taking the solution of silver nitrate mentioned above, 25 cubic centimeters were used for each experiment and carefully precipitated with potassium bromide so as to insure the least possible excess of the alkaline haloid. By this method there was secured a precipitate of silver bromide weighing 0.457 gramme (7.052 grains), which was carefully washed by decantation and drained from as much water as possible.

The first step was to find out how much of a given solution of sodium hyposulphite was necessary to dissolve this moist silver bromide under constant agitation. As the result of several experiments it was found to require 8 cubic centimeters (about  $2\frac{1}{2}$  fluid-drachms) of a solution of sodium hyposulphite containing 1 part of the salt in 6 of water, which is considered a fair strength for a fixing bath. This solubility of silver

bromide means that in a bath of hypo 1 in 6, every part of silver bromide requires 2.9 parts of sodium hyposulphite for its solution.

Taking the same quantity of silver solution and producing the silver bromide in the same manner as mentioned before, the solvent action of ammonia was examined. The ammonia solution had a specific gravity of 0.97, and contained about 7 per cent. of ammonia gas. This solution was used upon the silver bromide without any perceptible solvent action, even when used to the extent of three times the volume of the hyposulphite before mentioned. It appeared that this strength of ammonia was the greatest that could be conveniently used in practice; and, therefore, no further experiments were made with solutions of greater strength.

The next step was to see the effect of an addition of sodium hyposulphite to the above ammonia mixture containing the silver bromide still undissolved. On adding 4 cubic centimeters (about  $1\frac{1}{8}$  fluid-drachms) of a solution of hyposulphite (1 in 3) complete solution took place. Hence, in presence of a 7 per cent. ammonia solution, 1 part silver bromide requires about 2.9 parts of sodium hyposulphite for its solution, an amount exactly the same as in the case of the sodium hyposulphite solution of a strength of 1 in 6 mentioned above. But it must be remembered that the amount of hyposulphite in the bath was only 1 in 21 of water. Therefore, the presence of ammonia facilitates the solvent action of the hyposulphite.

A solution was now made by taking equal volumes of a hyposulphite solution (1 in 3) and solution of ammonia of 0.96 specific gravity. This gives a fluid containing one-sixth of hyposulphite and 4.87 per cent. of ammonia. Using the same quantity of silver solution, the silver bromide being prepared as before stated, it required 4.5 cubic centimeters (about  $1\frac{1}{8}$  fluid-drachms) of the mixture of hyposulphite and ammonia to dissolve 0.457 gramme (7.052 grains) of the silver haloid. This means that in presence of 4.87 per cent. of ammonia, one part of silver bromide requires 1.6 parts of sodium hyposulphite for solution. So that in the presence of ammonia a hyposulphite solution of the same strength will dissolve nearly

twice as much silver bromide as in the case of one where the ammonia is absent.

Another mixture of ammonia and hyposulphite was now made to see the effect of diluting the bath with ammonia solution. One volume of a solution of hyposulphite (1 in 3) was diluted with three volumes of ammonia solution of 0.96 specific gravity. This gave a mixture containing one-twelfth of hyposulphite and 7.32 per cent. of ammonia. Of this solution the silver bromide, as used in the previous experiments, required 7.5 cubic centimeters (about  $2\frac{1}{10}$  fluid-drachms) for complete solution. Hence, one part of silver bromide requires 1.37 part of hyposulphite for solution in presence of 7.32 per cent. of ammonia. But such a solution of ammonia is too strong to work with practically, and nothing further was done with it, except to keep a record of the experiment.

As the solution of ammonia is such a pungent liquid to work with, it was thought that perhaps some of its salts might be substituted for it. With this idea in view, a solution of ammonium carbonate was made containing 1 part of the carbonate in 10 of water. Equal volumes of this solution and sodium hyposulphite (1 in 3) were mixed and used upon the silver bromide prepared as before. The same quantity of silver bromide required 7 cubic centimeters (about 2 fluid-drachms) of the mixture for complete solution. Hence, 1 part of silver bromide requires 2.53 parts of hyposulphite for solution in presence of 5 per cent. of ammonium carbonate. We here see that there is but little gain in the use of the ammonium carbonate, and that it is not at all equivalent to ammonia.

Other salts of ammonium were suggested as possible solvents, and the chloride was next tried. A solution of sal ammoniac (ammonium chloride) was made, containing 1 part of the salt in 10 of water. This was mixed with its own volume of hyposulphite solution (1 in 3) and used on the same quantity of silver bromide as in previous experiments, and prepared in exactly the same way. Of this mixture the silver haloid required 7.5 cubic centimeters for complete solution. This means that 1 part of silver bromide requires 2.73 parts of hyposulphite for solution in a bath containing 5 per cent.

of ammonium chloride. Therefore, the presence of ammonium chloride is no material gain as an addition to the hyposulphite bath.

One other salt of ammonium was available, and it was thought it might possibly prove useful; this was the acetate. To make this salt, ordinary acetic acid was taken and neutralized with strong ammonia. The solution thus obtained had a specific gravity of 1.055, and contained about 30 per cent. of ammonium acetate. One volume of this solution (which was slightly alkaline with ammonia) and 1 volume of hyposulphite of sodium solution (1 in 3) were mixed and used on the silver bromide as before. It required 6 cubic centimeters of this mixture to secure complete solution. Hence, 1 part of silver bromide requires 2.2 parts of hyposulphite in presence of 15 per cent. of ammonium acetate. Comparing this with a solution of hyposulphite of the same strength (1 in 6), but without the ammonium acetate, we note a gain of solubility, but the large quantity of acetate necessary to secure it, makes the mixture too expensive and not worth considering from a practical standpoint.

Having tried these experiments upon silver bromide, it was natural that the iodide also should receive some attention. Using the same quantity of silver solution, but precipitating it with potassium iodide in the same careful manner, to avoid an excess of the alkaline haloid, washing and draining, there was obtained for each experiment 0.5725 grammes (8.835 grains) of silver iodide.

Starting with the usual hyposulphite solution (1 in 6), it required 78 cubic centimetres ( $2\frac{3}{4}$  ounces) of it to give complete solution of the silver iodide (0.5725 grammes). Hence, 1 part of silver iodide requires 22.7 parts of hyposulphite for solution in a bath of 1 in 6.

Another bath of hyposulphite, twice as strong as that given above, was now tried, and it required 37 cubic centimeters ( $1\frac{1}{2}$  ounces) of it to give a solution of the same quantity of silver iodide. Therefore, 1 part of silver iodide requires 21.5 parts of hyposulphite for solution in a bath of 1 in 3. It would, therefore, appear that there is no

economy in hyposulphite used in strong solutions when silver iodide is considered.

As in the case of silver bromide, ammonia solution has no perceptible solvent action upon silver iodide. However, a bath was made containing  $\frac{1}{6}$  hyposulphite and 4.87 per cent. of ammonia, and this was used as a solvent for the silver iodide. It required 67 cubic centimeters ( $2\frac{1}{2}$  ounces) of this solution to dissolve 0.5725 grammes (8.835 grains) of silver iodide. Then 1 part of silver iodide requires 19.4 parts of hyposulphite for solution in a bath of 1 in 6 containing 4.87 per cent. of ammonia. Here is a slight gain (about 11 per cent.) in the use of ammonia, and, although not as great as in the case of silver bromide, yet, under some circumstances, it may be of advantage.

Ammonium acetate in a solution containing 30 per cent. of the salt, and slightly alkaline with ammonia, had no appreciable solvent action upon silver iodide. But when ammonium acetate is used in a solution containing  $\frac{1}{6}$  of hyposulphite and 15 per cent. of the acetate (slightly alkaline with ammonia), it required 68 cubic centimeters (about  $2\frac{1}{2}$  ounces), of the mixture to dissolve the above-mentioned quantity of silver bromide (9.5725 grammes = 8.835 grains). This is practically the same result as that obtained by the addition of ammonia to the hyposulphite.

The effect of other admixtures with the hyposulphite was also tried with negative results. In some cases the mixing of another salt with the hyposulphite actually decreases the solvent power of the latter. Calcium acetate was tried as a solvent, both alone and mixed with hyposulphite. Alone, in a solution of 23 per cent. calcium acetate has no perceptible solvent action upon silver iodide. Mixed with hyposulphite solution so that the mixture contained  $\frac{1}{6}$  hyposulphite and  $11\frac{1}{2}$  per cent. of calcium acetate, it decreased the solvent power of the hyposulphite so that it required more than 30 parts of sodium hyposulphite (in a bath 1 in 6) to dissolve 1 part of silver iodide. The same is equally true if sodium acetate is used; this also retards the action of the hyposulphite. A mixture of sal ammoniac (ammonium chloride) and sodium hyposulphite acts in about the same manner, although not so

badly, solution being obtained, but very slowly. Ammonium carbonate also, when mixed with hyposulphite, also decreased the solvent action of the salt upon silver iodide, requiring about 30 parts of sodium hyposulphite to every part of the silver haloid.

Two other compounds were tried upon silver iodide, for this appears to be the most insoluble of all the silver compounds with which the photographer has to deal, and it would be a great boom if some better solvent than hyposulphite of sodium could be found for it. A solution of sodium sulphite was made containing 1 part of the salt in 4 of water; but it had no perceptible solvent action upon silver iodide, even with the addition of little ammonia.

Ammonium sulphite in a solution containing 1 part of the salt in 3 of water, had no apparent solvent action upon silver iodide, addition of ammonia making no change. But on adding a solution of sodium hyposulphite (1 in 3) complete solution was obtained after adding 50 cubic centimeters, the mixture already containing 50 cubic centimeters of the ammonium sulphite solution. It requires, therefore, about 30 parts of hyposulphite in a solution 1 in 6, with about 16 per cent. of ammonium sulphite to dissolve 1 part of silver iodide.

There are a few practical results that can be drawn from these imperfect and incomplete experiments upon the solubility of silver haloids. In the first place, there is the determination of the fact (already known in a general way) that silver iodide requires 7.8 times more hyposulphite for its solution than silver bromide in a bath of 1 in 6. Second, addition of ammonia to the fixing bath increases the solvent action of the hyposulphite so that nearly twice as much silver bromide and 11 per cent. more silver iodide are dissolved than when ammonia is absent. Third, that the addition of certain salts to the fixing bath decreases the solvent action of the hyposulphite independently of dilution. Fourth, that the action of the different salts in the fixing bath is materially different with the two haloids.

How the various additions to the hyposulphite act when applied to the fixing of plates and prints I have not yet been able



to determine, but hope to do so in the future. The question up to the present time has been: Is there anything we can use, either wholly or in part, as a substitute for sodium hyposulphite? At present there is nothing so harmless and so cheap as this now almost universally used sodium salt; but the many drawbacks to its use lead me to believe that something better may be found by diligent searching. And it would appear that some such experiments, as these I have briefly reviewed, are steps in the right direction. At some future time I hope to have the honor of presenting to this Association a continuation and amplification of the results here noted, and hope that others will be found able and willing to work in the same field.

This, then, is a kind of report of progress in a line of experimental work that has engaged my attention during spare hours in the past year. I know it is very incomplete; I know there is little that is practical in it at present; but I am satisfied that work of this kind is needed in photography. There is room for a hundred workers upon this and allied questions in photographic science, and if I shall have interested but one of you to take up some work of this kind, I shall be fully repaid for the time I have taken to bring before you this imperfect report upon a series of experiments that have given me great pleasure in prosecuting.

### GELATINO-BROMIDE PAPER AS A BASIS FOR FINISHED WORK.\*

BY GEORGE HANMER CROUGHTON,  
Rochester, N. Y.

THERE are doubtless many here who were at the Convention at Cincinnati in 1884, if so, they may remember that at a meeting held in the parlor of the Palace Hotel, I spoke upon the merits of gelatino-bromide paper and showed some prints and paper negatives made upon Morgan & Kidd's paper which I had brought with me from London, and after explaining its uses and advantages, I predicted a great success to any American dry plate maker who would go in for its manufacture. Again, at Buffalo the year following, when called upon

by Mr. Inglis to tell the Convention what I knew about gelatino-bromide paper, I repeated both my experience and my prediction. How far my predictions have been fulfilled you saw in the fine exhibit made at St. Louis last year by the Eastman Co., and this Convention, as you have all seen, is exceedingly rich in examples of its many useful and interesting applications.

I have been somewhat impatient at the difficulties which have attended its introduction in this country, but, upon looking back upon the history of gelatino-bromide paper in the old country, I find the same reluctance to change from old and well-known methods of working, and the same want of appreciating a good thing at first sight as I have experienced here.

As early as 1874, Mr. P. Mavdsley advertised gelatino-bromide paper for sale for positive printing and enlarging, and his advertisement of that date in which he points out the advantages and qualities of his paper, reads exactly like the many advertisements appearing in the American journals to-day. But from that time to its reintroduction by Messrs. Morgan & Kidd, of Greenwich, its advantages were lost sight of, or were not appreciated by the English photographers.

I am not quite certain if it was 1879 or 1880 that I first used Morgan's paper. I know it was very soon after its introduction, but I think I may claim that I was the first who wrote any practical directions for finishing in black and white and color upon gelatino-bromide prints. These papers upon finishing appeared in the *Photographic News* published in London, and helped many at that time who had a difficulty in working upon them. From that time I have been an enthusiast upon this subject, and certainly not without reason for having had over twenty-five years' experience as an artist, working during that time upon every description of photographic basis, I claim that I can finish prints upon bromide paper quicker and better, artistically and commercially, than upon any other.

The greatest opposition to the use of gelatino-bromide paper in this country has come from the artists. Photographers have been charmed with the results, but have

\* Written for the Chicago Convention.

been forced to discontinue its use because the artists they employ either could not or would not use it as a basis for either crayon or color. This opposition has been founded upon a want of knowledge on the part of the artists, and also from a fear that the bromide paper would hurt them in regard to prices. There has also been an idea that the power of handling was limited, and that broad artistic effects by stump and rubber could not be produced upon it as well as upon solar prints.

During the nine or ten months I have been with the Eastman Company I have proved, to the satisfaction of hundreds, that not only can all the effects, possible upon any other kind, be obtained, but it possesses some advantages which no other paper has, one of which is a most important one, and that is the power to remove or lighten any deep shadow without injuring the surface of the paper. Light as is the thickness of gelatine you can remove, with either rubber or scraper, the deepest shadow in a bromide print *without touching the paper under it.*

Eastman's permanent bromide paper is in this respect far in advance of its English predecessor. In the first place, the English paper is too smooth and the emulsion too thick. The paper itself is an important item. It should have a very decided texture of a particular kind, and the emulsion should be thin enough to size the paper without filling up the grain. These requirements are admirably filled by the crayon paper made by this company, and I prefer it for all kinds of finishing.

#### CRAYON FINISHING.

As crayon is the most popular material, I will commence with that. The materials are Conte Crayon Sauce, No. 1 and 3, Conte Crayon ordinary, and No. 0 and 1 superfine in wood, three or four leather stumps of various sizes, one dozen paper stippling stumps, a stick of ordinary office ink eraser, and two rubber stumps, soft and medium, some finely powdered pumice stone, and a quantity of carded cotton.

The print to be worked should be printed fully out, that is, it should have every gradation from high light to deepest shadow, and should look a little darker than wanted

for a plain print. It should be mounted upon a muslin-covered stretcher, as the best effects cannot be obtained if the print is mounted upon cardboard. Great care should be taken that no starch gets upon the face of the print during mounting.

Material for stumping. Take one stick of the Conte crayon sauce and crush it finely; two sticks of No. 1 Conte crayon must be finely powdered by rubbing them upon glass or sand paper No. 1, and then all rubbed to powder and intimately mixed with the Conte sauce.

Place the print flat upon a table. Have a piece of cardboard by the side of the print, take a tuft of cotton and rub it into the same thickness and rub it upon the cardboard to spread and equalize it, then transfer it to the background of the print, rubbing gently with a circular movement, rubbing right up and over the edges of both face and figure. Do not be afraid of spoiling your print, as it is easily taken off with the rubber. In putting in your background, see that the darkest part is kept low just over the shoulders, and bring the shaded side of the background up to the lighted side of the face, and the lightest part should contrast with the shaded side of the face and figure, while a bold shadow should be put in just over the shoulder to balance and represent the cast shadow. When you have got in your background roughly, put aside your cotton and straighten out the three longest fingers on the right hand and rub lightly all over. This is the most important part of the background work. The fingers, must feel the crayon roll evenly under them, and if they do not, but catch the paper instead, then there is not enough No. 1 Conte in the mixture, and more must be added till that gritty feeling is obtained, then go ahead rubbing all over the background with a circular movement, taking no trouble to keep off the face or any other part of the picture. If you wish to darken any part, rub the tips of the fingers with the same and transfer the crayon taken up on the part of the print which needs it and rub it in. An even tint can be rubbed all over a black coat or other dark drapery in this manner, shadows deepened and the hair strengthened. In fact, all that is usually

done by the chamois skin upon solar prints, can be done with the fingers upon the bromides. Now take a large piece of clean cotton, and after knocking the superfluous crayon off the picture, rub evenly all over. This will considerably lighten all the crayon, but if not light enough, or there are any inequalities in the background, dust a little pumice powder evenly over all and go over it again with the finger, using more pumice powder wherever you wish to lighten, but being careful not to use too much, as an excessive use of pumice powder will rub down and flatten the grain of the paper. If these directions have been carefully followed, the background will show a beautiful grain or stipple, so like a hand stipple that it has puzzled experts to detect the means adopted for producing. This grain can be varied by the method of handling. With a light rub a large open grain can be obtained, and the heavier the rubbing the smaller the grain will be. Now rub again with clean cotton and place the picture upon an easel. With an ink eraser clean the edges of the background and blend with the cotton. At this stage any amount of artistic effect can be put in and taken out of the background; the stump can be used to hatch in broad effects, and the ink eraser to take out lights, etc. This part of the work it is impossible to describe. Individual taste and experience are the only guides to this part of the work, and the beginner had better not attempt too much in that line till experience has given him confidence.

Having thus far gotten your background in order, we will proceed with the figure. Begin to clean up the face with the rubber stump, taking out the high lights upon forehead, cheek bones, and chin, and blend with a small tuft of cotton. In some cases this handy little tool may be made more effective by dipping it just before use into the powdered pumice; thus by the use of the rubber stump and cotton blender, the modeling of the face can be worked out and the beginner will now be surprised to find how much lighter the face appears. In fact it lacks decisions which we will now proceed to put in. Take one of the stippling stumps and rubbing it in the sauce before described, mark in the pupils of the eyes,

the lines of the eyelash, the shadows under the eyebrows, the brows themselves, the nostrils, and the shadow under the chin, blending all with cotton. Next deepen the shadows of hair and drapery with one of the heavier stumps, blending also with cotton or the fingers, now on the deepest shadows of the drapery and everywhere where decisive touches are wanted. Mark in strongly with Conte No. 3 crayon and blend with the fingers. Do not touch these shadows with the cotton or you will destroy primness. When you have got this far you will be surprised what an effect you have obtained with little labor, and now any amount of finish can be obtained by working with the point of crayon No. 1 and 0. The filling in of the face is best done with No. 0, and should be done in the same manner as retouching a negative; filling in and softening breaks or inequalities in the gradations. The No. 1 is useful in rounding and marking the eyes, eyebrows, hair, etc. White drapery should never be touched with white crayon. Any amount of light can be taken out by the hardest rubber and dark shadows can be lightened with it. Great effect can be obtained by first covering the white drapery with a light tint of crayon sauce rubbed evenly all over with cotton and the lights taken out with the soft rubber. Lace can be made out in this manner with great effect and with far better harmony than can be obtained by the use of white chalk which gives a metallic effect and for that reason should only be used upon the high lights of jewelry, etc., but, as a rule, the less white chalk is used the better.

#### RETOUCHING OR MENDING.

There is another method of finishing bromide prints which may prove acceptable to those photographers who do not want them finished in crayon but yet want some kind of finishing or retouching to improve plain prints, which can be done simply and cheaply by the usual help in the studio. The spotting or mending the white spots upon bromide prints can be done with India ink to which has been added just enough Paynes gray to neutralize the brownish tint of the ink. With this, the pupils of the eyes, the line of the lash, the eyebrows, and

in fact, every shadow, can be deepened, taking care not to lay it on too thick at first. It is better to get the effects by repeated washes than to get them at once, as you are likely to get harsh edges if the color is laid on too deeply. Having in this way got in your strength, mend the face, and fill in any breaks in the gradations with a Faber retouching pencil. If the picture is a vignette and the blending should be uneven or too abrupt, you can correct that by rubbing upon the parts to be blended with pure graphite or plumbago in this manner. You can buy the graphite or plumbago (it is known by both names) at any artist's material store. It is sold in bars or short sticks, something like India ink, or failing that, go into the kitchen and levy contribution upon your wife's stove polish. Take a tuft of cotton and rub upon the bar or cake of graphite till it is well covered and shiney, then gently rub upon the part to be filled up. This matches the bromide print both in surface and color. Shadows in white drapery can be deepened and a tint put all over it so that high lights can be taken out with the rubber just as I have described in the crayon work.

Another dodge for improving the shadows of a bromide print is to rub over them a solution of wax in benzine, and polish with a brisk rub with Canton flannel. To be more definite, take one and a half ounces of bleached beeswax, cut it in small pieces, and put into a bottle with eight ounces of benzine. When the wax is dissolved, apply the mixture to the shadows with a piece of rag, and after the benzine has evaporated rub briskly over the part with Canton flannel until it shines. You will be astonished at the result. The buried details scarcely seen will show themselves clear and distinct and the shadows will be deepened and made more transparent. This can also be applied all over the print and gives a surface with a slight gloss, bringing out detail and making the print fifty per cent. more brilliant without the objectionable gloss which you see on a varnished print.

#### FINISHING IN WATER COLOR.

Of course in a paper like this I would not begin to give anything like an exhaustive

set of directions for color finishing, so these remarks must be directed to those who know something about finishing in color upon other surfaces. You will notice that in the first two methods of finishing I say nothing about preparing the surface of the paper, simply because there is no preparation required. For water colors the surface must be prepared by hardening the gelatine surface with alum. Without this hardening the surface is too receptive, the color being held when the brush just touches, and any attempt to blend or soften will result in getting up the print from the surface of the paper, but after the application of the alum you can do anything with it. You can wash on or out and even take out lights with water and rubbing with a cloth without raising the surface. The alum solution is one ounce powdered alum to twenty ounces of water. This is swabbed over the surface of the mounted print and left to dry, when it is ready for working upon.

Good effects upon vignettted prints can be obtained with very little expenditure of time by rubbing the background with colored pastel, the half hard kind to which has been added just enough powdered pumice to make the mixture feel gritty. Proceed exactly as described for crayon. You can rub one color over the other and so get the effects of combined tints which are very pleasing. I set my palette for flesh painting with pink madder, vermilion, yellow ochre, cobalt blue, and the various browns for hair, etc. I just put a flat wash all over the flesh with a tint made by combining the pink madder with the yellow ochre in different quantities according to the complexion, a dark complexion needing more yellow and a fair one more of the pink. Having put in my flesh washes, I next proceed to wash over the shadows with light washes of vermilion to kill the black of the prints. Next put in the carnations on the cheeks and lips; after this the face must be finished by hatching and stippling, the edges of all shadows being stippled with gray composed of cobalt and yellow ochre, the blue predominating on the forehead and upper part of the face and yellow on the lower part. All the usual methods of working water colors upon drawing paper or on

any other photographic surface can be used on bromide paper after it has been prepared with the alum solution.

#### PASTEL.

There is no preparation of the surface needed for pastel. It takes hold of the surface as well as on any other paper and can be worked by any of the usual methods. I like a good vigorous print with clean lights and half tints and shadows not too black. I first lay in my dead coloring with soft French pastel, covering the photograph with the flesh tints as near as possible, with the proper strengths, lightening up the shadows with vermilion and yellow, then hatching with half hard and finishing with hard Swiss crayons. An effect of great finish is obtained by this method.

#### OIL.

For painting in oil upon a paper print a sizing must be used to prevent the oil in the colors getting into and staining the paper which it will do in spite of the gelatine. The sizing solution is ten grains of gelatine to one ounce of water brushed evenly over the print with a broad camel's-hair brush; but paper is a bad basis for oil painting and oil artists will be glad to know that canvas coated with the gelatino-bromide emulsion is being made by the Eastman Co., which requires no preparation and can be exposed and developed exactly like the paper. As with pastel so with oil, I prefer a good, clear, strong print, and work somewhat in the same manner; viz., from the shadows to the lights, painting over the photographic shadow with warm transparent colors, and using opaque colors on lights, half lights, and reflexes, finishing with solid color on the high lights and cool grays on the edges of the shadows.

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#### PRICES.\*

BY C. GENTILE.

DOUBTLESS others will have many papers treating on the theory and practice of the various processes worked in the daily avocations of the photographer. In this it will be well to let us consider for a few minutes

a subject which is uppermost in the minds of many, even if we are unable to remedy the evils that photographers are suffering from, but I am convinced that many among you will go home disappointed if this subject is not broached. There are some who say it is absolutely useless to touch it. That it is treading on dangerous ground; that it is an evil that must work its own remedy. That everyone has a right to carry on his business as he pleases, and that, notwithstanding anything that may be said here, no reforms can be made practical that will be adopted that can benefit the craft. I wish to suggest that at least an effort can be made in this direction. No reforms have ever been accomplished without overcoming frequently unsurmountable and formidable obstacles. Let us see if we cannot find a Gladstone and a Parnell to aid us; or, perhaps in the minds of many a severe coercion act would be more applicable in our case as being more effective to aid us in voting out the pests that are a curse to our beautiful calling. There is no country in the world where competition is keener than among the photographers of the United States. Nor is there a country on the face of the earth where the effects of cut-throat prices and cheap Johnism have been more seriously felt by the members of the profession.

To many here this subject is of great import. From the advertisements of photographers inserted in the Chicago daily papers the business of photographers for hundreds of miles around is effected, and that most seriously. In no other country or in any other city are to be read such disgraceful and unprofessional advertisements as are to be found most frequently in our leading newspapers, and especially on Sunday. It is a disgrace to our leading journals to allow their columns, for the sake of a few dollars, to be used to abuse members of a reputable profession as is frequently done right in this city. You cannot find a member of any other profession but the photographic who delights in publicly degrading and insulting his competitors. Sometimes the attacks are of such a personal character that in many European and South American countries the proprietors of the newspaper, as well as

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\* Read at the Chicago Convention.

the advertiser, would be held responsible and justly chastised, or "called out" and made to account for his actions, but in this free and enlightened country the cowardly and base advertiser, who has a few dollars to throw away, can at will hold up the followers of the same profession in which he makes a living to the ridicule of the public. If we want the public to respect our calling we must respect ourselves. Of late this mania for large and vulgar advertisements is spreading, and there is no knowing where and when it will end. The majority of our successful photographers advertise very little in the daily papers, and, if at all, generally a neat and respectful advertisement without any allusion to their competitors. Other professional men rarely make any reference to one another. It would not matter so much on the whole fraternity what an individual might occasionally say about another in the same business, but the dire effect of advertising cut-throat prices is felt throughout the neighboring states that are adjacent to a city like Chicago, whose papers are sent out in thousands on the morning trains.

The disgustingly illustrated advertisements of some photographers cannot help but attract the attention of the unthinking. The members of this Association might pass certain resolutions as to what they consider professional etiquette as regards advertising, but it is to be feared it would have no effect on the photographers who are endeavoring to drag into the mire the whole profession.

I consider this matter of advertising and the serious question prices should be brought up for discussion at least. It would be well on an occasion like this to let the public know that photographs are being made by some, at prices that lead only to ruin and degradation to the man who makes them, and that the man who respects himself sufficiently to obtain higher and remunerative prices is the artist who is looked up to and, in the long run, patronized by those who have been disgusted with the work done by the majority of those who give their professional services for little or nothing. The great difficulty in grappling with this question is, that portraits made at low rates are much too good for the money, and we

reluctantly are compelled to acknowledge they satisfy a certain class of people who do not go into the artistic merits of a photograph. To them a print from any negative is a portrait. One remedy, as proposed by Mr. Scotford, could be made a success, if the majority of the members of this Association would take hold of it, subscribe sufficient working capital, and provided practical business men were given the management of it. Perhaps it will be well to explain, in as few words as possible, that Mr. Scotford's idea was that a joint stock company should be formed by photographers, they owning all stock. When a photographer in any town or city undertakes to make a cut, the company steps in and rents a gallery of a member and aids him to meet the cut, or rent one themselves and run it until the man who started the cut gets sick of it and agrees to abide by an established rate. My object in bringing this subject before you is not to propose a remedy myself, but with the view that by calling your attention to it, some among you might suggest a manner of alleviating the suffering of those who are unfortunate in having small galleries and unremunerative business, owing, principally, to the cut-throat propensities of a few who do not care what becomes of their neighbor.

It is well known that many will use the hackneyed phrase with regard to this price question, "What are you going to do about it?" My answer will be, "Let us tackle it, and wrestle with it, for if it is left alone it will drag on for years." It would be well for the fraternity to do away with the pernicious system of giving chromos and life-size portraits with every dozen cabinets.

It does seem strange that there should be less unity among the photographic profession, with regard to a scale of prices, than in almost any other calling. The hodcarrier, carpenter, and even the bootblack do not cut prices like photographers. There should be more unity among those who work in photographic studios. If assistants were banded together they would get better wages and could better their condition. To avoid a waste of time in discussion on the subject of prices, it might be well to appoint a committee of three proprietors of galleries to make an investigation, and report,

if possible, before the close of the Convention on the price question.

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### OUR PICTURE.

SINCE the days when our own pictures of Egypt were used for the embellishment of our magazine, our readers have seen nothing "Afric's Golden Sands."

Through the courtesy of Mr. Lulu Farini, Bridgeport, Conn., we are permitted once more to give a picture of that far-off, though well-known country—a view of Cape Horn and vicinity. Altogether, it is one of the strangest of landscapes, showing the curious site of a curious city and its mavelous natural surroundings.

The original negative was 10 x 12, dry plate, made with a Voigtländer & Son No. 4, wide-angle euryscope lens, and "our picture" was printed from reductions produced from a transparency supplied by Mr. Farini. The reduced negatives and the prints were made by Messrs. Roberts & Fellows, No. 1125 Chestnut Street, Philadelphia, the latter on the famous N. P. A. paper, imported for us by Messrs. E. & H. T. Anthony & Co., New York.

With reference to the view, we refer to a letter received from the talented African traveller and excellent photographer, Mr. Farini, who writes as follows:

"Is it possible that there is enough merit in my poor picture of Cape Horn and the Lion's Head to justify its being honored by publication in your magazine?"

"I have always felt a consciousness that this particular plate should be classed among the "failures," not only on account of its technical imperfections, but because of its conveying so feeble an impression of a scene worth travelling many thousand miles to witness. When I look at this picture it makes me feel sad to think that I must be content with so insignificant a reward for the labor and patience expended on its production. During the week's interval between our landing at the Cape and continuing our journey southward to the Kalahari Desert, I found food for my camera in Cape Town and its picturesque surroundings. Instantaneous views from a row-boat were

made of the harbor and town, backed with Table Mountain, which towers above the whole like a perpendicular wall 5000 feet high; to reach its summit one must climb by circuitous paths, and the time required to perform this upward journey averages six hours. But, providing the sky is clear, no one will regret the laborious task, for the view from this elevation is magnificent. Not infrequently, however, is the sightseer not only disappointed, but put to considerable inconvenience and risk of personal safety, for it is no rare occurrence to have a dense fog shut down over the mountain totally obscuring the distant view, and, at the same time, increasing the difficulty and danger of climbing—in fact, many lives have been lost where the impatient tourist has rebelled against a prolonged imprisonment, and in attempting to regain a lower altitude, has fallen over the perpendicular cliff.

"Our view was made from a standpoint 4500 feet above the sea level, or from a ledge of rock about 500 feet below the mountain's summit. The day was clear and intensely hot, and from our elevation we could command a view, not only of Cape Town, the Lion's Head, and Table Bay, but we could also *look over* the "Lion" and see an island far out at sea."

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### OUR FLORENTINE AWARD.

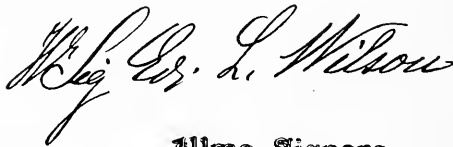
WHILE the glow of prizes offered by the Photographers' Association of America and its supporters did not include a single inducement to the fountain-head of all our growth and improvement, *the literature of our profession*, but simply ignored it, at that great home of art, Florence, Italy, the hosts who attended the grand commemorative exhibition there were attracted by a superb display of the works of our art, in the centre of which was located the various publications pertaining thereto; among them were the volumes of the PHILADELPHIA PHOTOGRAPHER from its beginning, in January, 1864, to date, the varied embellishments being a fair showing of the rise and progress of photographic production. A silver medal of the first class was awarded for our humble collection, much to our sur-

prise, for indeed we did not know that we should be considered when our magazine numbers were sent with the simple desire to show our interest.

We received the following notice:

COMITATO  
PER LA  
PRIMA ESPOSIZIONE ITALIANA  
DI  
FOTOGRAFIA  
FIRENZE — Via della Colonna

Commissione esecutiva



Illmo Signore

*Questa Commissione adempie con piacere al grato incarico di parteciparle che l'onorevole Giuria le ha conferito.*

**La Medaglia d'Argento di I.<sup>ma</sup> classe.**

*Riservandosi prevenirla a suo tempo del giorno in cui sarà fatta la solenne distribuzione delle ricompense, La prega gradire le migliori congratulazioni ed i sensi di stima distinta.*

IL V. PRESIDENTE

**CARLO BROGI**

[Translation.]

COMMITTEE OF THE  
FIRST ITALIAN EXHIBITION OF PHOTOGRAPHY,  
EXECUTIVE COMMITTEE,  
FLORENCE, COLONNA STREET, July 10, 1887.

SIGNOR EDWARD L. WILSON,

ILLUSTRIOUS SIR: This Commission has the grateful duty to inform you that the Honorable Jury has conferred upon you the Silver Medal of the First Class.

We will advise you in due time of the day on which will be made the solemn distribution of the prizes.

Begging you to accept our best congratulations and the sentiment of our distinguished esteem.

CARLO BROGI, *Vice-President.*

A. ANGHINELLI, *Secretary.*

*Li 10 Luglio 1887.*

IL SEGRETARIO

**A. ANGHINELLI**

This means more than a simple source of gratification to ourselves—it is a recognition of us all and of our art, which we should not fail to recognize.

In a city that was once the home of Michael Angelo, where hang acres of the paintings and tapestries of the old masters, our art has been sought out, appreciated, understood, and given a recognition of which we may all feel proud.

It is for this reason more than for any value the splendid medal may have for us personally, that we rejoice.



**LOOK OUT FOR HIM.**

THROUGH your journal I wish to protect my brother-photographers from being swindled by a man that is passing himself off as a crayon artist. His way is to go around getting orders for crayons all framed for ten dollars, by showing a good sample, collecting part or all before he finishes them. Also making arrangements with the photographers to make sittings for his subjects at a nominal price. After making some half-dozen or so negatives, one finds that he has skipped.

He has the appearance of an English dude, below the medium height, wears eye-glasses, walks a little stooped, takes short steps, and goes by the name of E. K. Slater. I have been informed that he has been in several towns and cities, leaving in a short time with unpaid bills; he got over a hundred dollars out of a poor man here, by offering to pay twelve per cent. a month, as he wanted to get a solar camera and would be able to refund the money in a few months. If you wish to put this in your valuable journal it may save some from being swindled.

Very truly,

D. T. BURRELL.

PROVIDENCE, R. I.

**PERTAINING TO THE****SECOND DAY.**

After considerable persuasion on the part of some of the attendants, who acted as missionaries amid the exhibits, an attendance of about two hundred gathered around the genial President and the Second Session of the Convention was opened at about 10 A. M.

After several announcements had been made, Dr. A. H. Elliott read his paper on "A Search for a Substitute for Hypo," and was followed by Mr. J. F. Ryder, who read a very practical paper on "Overdosing." A communication from the dealers and manufacturers recommending a Biennial Convention was scarcely given a moment of fair consideration.

Mr. Wilson read the following communication:

I ask the good offices of this Convention in behalf of Jex Bardwell, of Detroit, who has saved the photographers of the United States a vast deal of money as you know, he having furnished the evidence that broke the Cutting bromide patent and also the Shaw silver-saving patent. He is now old and penniless, and the latter, not the result of any fault, but rather misfortune. I have frequently helped to various little sums, also materials, and sometimes to food for himself and wife.

It seems to me that if this matter were rightly presented to the coming Convention by yourself or Mr. Cramer, the President, and the right solicitors appointed and a collection and subscription taken at a full session, a sum reaching to \$1000 or more could be realized, and that would help him to the means by which he could make a livelihood. I know one firm in New York that ought to give him more. Please take hold of this for the sake of sweet charity, and also for the credit of photographers.

Again wishing you hearty success,

I am respectfully yours,

D. J. SMITH,

Detroit, Mich.

Mr. Wilson then related the debt due by all photographers to Mr. Bardwell and moved that the Association start the \$1000 purse for him by an appropriation of \$100. This motion was seconded and was enthusiastically carried.

A congratulatory telegram was read from the English Convention, and thanks voted.

An appropriation of \$150 was also made toward a metal tablet in memory of H. T. Anthony, Esq.

The appointment of a Committee on Awards excited considerable interest and

discussion and resulted in the following being chosen :

Dr. John Nicol, *Chairman*, Dr. A. H. Elliott, Mr. R. Goebel, Mr. E. Long, Mr. J. Inglis.

The reports of the Committees on Nomination of Officers and Location were read and received, after which the main portion of the session was taken up by the reading of the report of the Committee on the Constitution and By-laws and its discussion.

Messrs. Staples, Bellsmith, and Stuart were appointed a Committee to confer with the Underwriter's Association in the matter of insurance.

#### REPORT OF THE EXECUTIVE COMMITTEE.

Mr. President and Members of the P. A. of A. : The Executive Committee congratulates you on the prosperous condition of the Association. In complying with the custom of a yearly report from the Executive Committee, I will endeavor to use as little of your valuable time as possible. At the close of the very successful Seventh Annual Convention held at St. Louis, the following officers were elected to serve for the year 1887. G. Cramer, President, H. M. Bellsmith, Secretary, G. M. Carlisle, Treasurer, J. Landy, and W. V. Ranger, Executive Committee. Pursuant to a call from President Cramer your Committee met at the Palmer House, Chicago, January 15th, and remained in session four days. The proceedings of that meeting, having been published by the photographic press you are, doubtless, familiar with them. We there elected C. Gentile, Local Secretary, with the unanimous approval of the Chicago members. The Committee on Incorporation made their report and presented a Charter granted by and under the laws of the State of Illinois. The Charter was accepted and the names of Gayton A. Douglass, Charles Gentile, and E. L. Brand engrossed therein, were continued as Trustees until the next annual election of officers. The books of the Association were audited, and some important revisions were made in the constitution, which will be submitted to you. It has been the aim of your Committee to carry on the affairs of the Association on a basis of true business principles,

as inaugurated by the two previous Executive Committees, and not have the Association depend upon charity for subsistence. The Association and its conventions are now self-supporting. We have endeavored to elevate our exhibitions of photographs to the true art level, and to that end have passed a resolution excluding everything of an advertising nature from the art department. The extent to which advertising has been carried heretofore in the art department, has been, we think, degrading. In order to encourage all classes and give them an opportunity to compete for prizes, we have arranged a large number of medals for the various branches of photography, and it was resolved that the prizes for exhibits of photographic work should be awarded by a committee of five members of the Association appointed by the Executive Committee. In closing, we desire to thank the Chicago photographers for their kindly aid, also the dealers and the photographic press.

#### THE WEDNESDAY EVENING RECEPTION.

One of the successes of the week was the reception given by the Chicago photographers and dealers, on Wednesday evening. The Exposition Building was brilliantly lighted and about 800 ladies and gentlemen entered it and marched to the audience chamber to the sweet music of an excellent orchestra.

The following programme was carried out to the letter :

Programme of the Reception to the members of P. A. of A., at the Exposition Building, Wednesday evening, August 10th. Committee of Arrangement, C. Gentile, Joshua Smith, J. H. Wallach.

#### *Part I.*

March, "Greeting to P. A. of A. . . . . *Bial*  
Overture, "Massaniello" Arrival of Customers . . . . . *Auber*.  
Waltz, "Artist's Life" not in the Studio . . . . . *Strauss*.  
Selection, "Trip to Africa" Knights of the Camera . . . . . *Suppe*.

#### *Part II.*

Farmer Gray and Wife get Photographed.  
*Miss Clara Lapierre Rose (by permission*

*Prof. W. C. Lyman*), Assisted by *Harold Bellsmith and C. Gentile*.

Overture, "William Tell" Sharp Focus.

*Rossini.*

(a) An Order for a Picture . . . *Carey.*

(b) Got His Hair Cut. *Prof. W. C. Lyman.*

### Part III.

Gavotte, "Sounds from the Dark Room."

*Lattan.*

A Comic Selection.

*Miss Clara Lapierre Rose.*

"On Guard" (Cornet Solo from Distance)

More Developer . . . *Diering.*

### Part IV.

Fantasia, "Lohengrin" Artistic Pose.

*Wagner.*

Mr. Dixon, of Toronto, will give his Celebrated Walk on the Tight Rope.

Selection, "Wet or Dry" . . . *Lecocque.*

### Part V.

Passage of Arms, by *Italo-American Fencing Club.*

Cramer Waltz (Gipsy Baron), Extra Rapid,

*Strauss.*

Gallop, "Tally-Ho," Instantaneous Shutter,

*Weingarten.*

Reception Committee, L. W. Felt, L. M. Melander, E. L. Brand, C. D. Mosher, Max Platz, E. D. Edgeworth, G. A. Douglass, H. J. Thompson, N. C. Thayer, A. J. Anderson, F. Place, C. Gentile, Joshua Smith, D. B. Sweet, J. F. Wallach, M. J. Steffens, M. B. Lunegan.

In addition the Banquet Hall was also brilliantly lighted and tables set with tempting edibles and harmless viands, which were given unanimous attention and appreciation.

The occasion gave the visiting photographers an opportunity to become acquainted with their hosts and with one another and was exceedingly enjoyable.

Congratulations flew hither and thither like the scintillations of the electric spark; every one present seemed to enjoy the evening most heartily. Certainly the hospitality of Chicago will not soon be forgotten.

## THE CHICAGO EXHIBITION.

It has always been a matter of solicitude with us as to what sort of notice our duty to the largest number of our readers required us to record concerning the annual exhibitions of photography which occur in connection with the Conventions of the Photographers' Association of America. Heretofore we have endeavored to catalogue the entire list of exhibitors, mention each class of work, commend where we could, and point out the lessons to be derived. That course seemed to give the most pleasure to the few exhibitors and attendants, but it was not of much profit to the larger number of our readers who neither exhibited or attended the Conventions.

How to present the case better—how to derive and diffuse some wholesome and practical lessons from such a grand opportunity as the Exhibition invariably offers, has caused us the solicitation we have already mentioned.

We have at least determined to try a new course, trusting that the result may be greater good for a greater number than our former method has afforded. Only the future can tell if our decision is a correct one. As we wandered alone among the alcoves sided by the acres of photographs the questions came to us over and over—what does all this mean? what does it all teach?

The majority of the attendants upon the Convention with whom we had personal conversation declared that their purpose in being there was to learn—from the technical discussions in the Convention, from the displays of the dealers and manufacturers, and from the photographs. From these gentlemen and ladies we took our cue and decided that what lessons we learned from the exhibits, should, so far as we could make them plain, be imparted to our readers. Another reason which led us to this course was the fact that inasmuch as the great abundance of awards made would necessarily bring quite a critique from the able jurors appointed and at the same time satisfy the most of our readers as to what pictures were the best, that it would be presumptuous in us to try to lead our readers to opinions which might differ from those of men (no

women) so distinguished in our art and its literature.

To come to a focus, then, what follows is simply a running comment upon the display made, especially in the directions where we thought we saw growth, improvement, changes, special features, particular individuality, tendencies in the wrong direction, advances in the right direction, new features, and some allusions to technicalities.

As a whole, we do not think the exhibit was equal to that of last year. We think the absence of elaborate frames and glittering ornamentation had nothing to do with this fact. There were not so many fine pictures at Chicago as there were at St. Louis, and there was not the same evidence of general growth and advance.

There were some exhibits by old and well-known photographers that were not any better, if indeed they were as good, as those made by the same parties three or four years ago.

There were some exhibits by absent but patriotic photographers who wished to be represented or who desired to compete for a prize, which we are sure would not have been sent if the gentlemen had attended the exhibition at St. Louis or Buffalo. These last-named parties would do well, good fellows all, to attend an exhibition or take lessons from "our picture." They are getting behind in the race for excellence.

There were some exhibits there which should not have been hung (so bad were they), except from sheer good nature, of which we always approve.

There were some individual pictures there which should have been kept back for the reason that they were bawdy and degrading to our art, especially at this time when the public has been somewhat aroused by the imprudence of some of the members of our craft, who, under the plea of producing "art" studies, have used our noble profession as a cat's paw to haul out pictures from the life which are gross and pander only to the coarsest tastes. We believe we possess as liberal art feeling as anyone, and are not prudish; but we do not want to see any blotches raised upon the fair face of photography by those who have no noble feeling for it or art either.

One of the most cheerful lessons of the exhibition consisted in the great tendency to genre work—the rendering of the ordinary scenes of life by means of plain photography. This is the best and healthiest direction in which our *art* can grow, for the exercise which comes with it is sure to promote the healthful increase of our aesthetic stature.

And yet, cheered as we were by what we saw, we were compelled to the thought over and over again: how much better that would have been—how much nearer to the goal, if the clever artist had, after the conception of his subject, thought a little deeper as to the details of treatment.

A "Judith" with a Colt's revolver in her belt; a "Magdalen" with a girdle made of trade dollars about her waist; a "Serenader" in bare feet, and a "Convict in his Cell" in buttoned gaiters, are none of them in strict taste, not to speak of the male portion of "A Bridal Couple" leaning up against a pump with the better-half under a tree standing on a grass mat.

And yet, even these last give evidence of thought, and whenever an artist thinks, he is, if he keeps plodding, bound to grow.

A genre picture should be made to tell its tale tellingly, not pretentiously, much as a story should tell artistically what its author desires to impress upon his readers, and should always be natural.

There were many pictures at Chicago which did this, which were fine in conception, rendered with care and always admirable in technique. We can only name some of them. Even this would do no good, except that the study of such pictures does good, and the list given will inform those ambitious to work in this direction where to obtain good studies. There were many excellent efforts not mentioned below, for we do not pretend to give a complete catalogue by any means, but the following attracted our attention and admiration:

"The Serenader" and "At Play," by F. W. Guerin, St. Louis, Mo.; "Man, Know thy Destiny," by J. Landy, Cincinnati, O.; "The Harpist," by J. C. Strauss, St. Louis, Mo.; "The Bugler," by H. Randall, Ann Arbor, Mich.; "The Maniac" and "The Old Hunter," by Montfort & Hill, Burling-

ton, Iowa; "Ye Printer," by E. Long, Quincy, Ill.; "Servitude," "The Old South," and "The New South," by C. W. Motes, Atlanta, Ga.; "The Old Potter at the Wheel" and "The Shoemaker and Child," by Messrs. Knaff Bros., Knoxville, Tenn.; "The Tambourine Girl" and "The Young Artist," by G. Cramer, St. Louis, Mo.; "Morning," by Mr. Chas. Butterworth, Hamilton, Ohio, and "The Hay-makers" and "The Vagabond," by S. L. Stein, Milwaukee, Wis.

Last, but not least, a magnificent collection by Mr. Oscar Suck, Karlsruhe, Germany, a gentleman whose work and name are well known to our readers. Of this last collection we shall have more to say when "Our Picture" appears shortly, showing one of Mr. Suck's admirable subjects, "The Old Market in Karlsruhe."

Now, of the gentlemen named, only a few made any attempts at genre work three years ago. This year the results show advancement in art understanding; the ability to start a conception and the power to carry it out. It will be a happy day for photography when this tendency towards life delineations numbers hundreds among its ardent admirers and votaries.

The careful observer at Chicago must have noticed too, how each man's work seemed to be, nay, was, impressed with his own distinct individuality. The artist always shone through and from, as the light comes, but there was in each case an interference of character—of individuality—which made the pictures of one exhibitor look "different" from those of another.

As an example, every one was struck with an admirable something which characterized the hundred or more *genre* pictures of Mr. Suck, the larger portion being of the peasantry of the varied and curious people who dwell in the German provinces. There was a gleam about the face and a clean-swept look about the draperies that made one feel that each subject was in his "Sunday best." But it was not so, for anyone taking the trouble to look would see dozens of Mr. Suck's "pet subjects" attending to their daily avocations in the "Market Place" pictures. The gleam of the faces was started by Mr. Suck's own cheerful magnetism,

and the lovely technique of the pictures came from his artistic arrangement and skilful lighting.

In viewing the large quantity of bust pictures at Chicago, one was also attracted curiously by the different methods of lighting adopted by the various artists. This becomes much a question of taste, although the rules are as rigid as are those of composition.

One floods the light upon head and face; one directs it in spots; another masses it upon one side of forehead and part of the face, while another allows only a diffused light to fall softly, creating almost a uniform tint over the whole picture. And last of all, the man of tender feeling so contrives to cover his faces and heads with half-tone, as to make the light appear to glow and even change as the observer changes his standpoint.

Some of the very best of studies in this particular line were shown by Mr. P. H. Rose, Providence, R. I. (notably his "Old Lady," "The Governor of Rhode Island," and the little airy maiden in a shepherd's plaid), Mr. J. F. Ryder, Cleveland, Ohio; Mr. H. McMichael, Buffalo, N. Y.; Mr. Scott, Chicago, Ill.; Mr. F. W. Guerin, St. Louis, Mo.; and Mr. A. J. Treat, San Francisco, Cal.

As in lighting, so in the management of the lines, much opportunity was given for the enjoyment and study of the individuality of the general exhibitors. In the rarer cases, the grace of person, the arrangement of the clothing—we speak only of these, and not of the accessories—was most careful and artistic. We are inclined to believe that the prizes offered for the best collections of cabinet pictures had something to do with this. Among others, we remember the collections of Messrs. W. S. Bell, Pittsburg, Pa.; Holland & Roberts, Boston; F. Thors, San Francisco; E. Poole, St. Catharines, Ontario; B. La Marsh, Kenosha, Wisconsin; H. Dixon, Toronto, Canada; Wm. Kuebler, Philadelphia, and the original and large collection of Mr. Appleton, of Dayton, Ohio. The average of these were very charming—of the first class.

Still, others were notable for the pleasant

expression which seemed to pervade the faces of the sitters. We thought we could guess from these the genial temperament of the knight of the camera who caught them. Indeed, a personal acquaintance in some cases justified us in guessing it in others. Worthy examples in this line were abundant in the productions of Messrs. J. A. Brainerd, N. Y.; G. W. Wise, Janesville, Wis, Potter, Mansfield, Ohio; B. F. Battels, Akron, Ohio; G. M. Elton, Palmyra, N. Y.; L. C. Overpeck, Hamilton, Ohio; Lor-rin E. Miller, Alliance, Ohio; and John A. Scholten, St. Louis, Mo. The photographer must be genial in order to secure such geniality of expression in the faces of his subjects.

With no opportunity of bringing the pictures before our readers, we are at a loss to convey further any satisfactory ideas as to the whole grand exhibit—for it was grand, in truth. A few allusions to further notes made, and we withhold.

The magnificent collection of Niagara and Florida views of Mr. George Barker, Niagara Falls, and the superb landscapes of Mr. W. H. Jackson, composed the bulk of the landscape views. But little attention seemed to be given in this direction. Has it been abandoned to the amateurs?

The exhibits of enlargements upon bromogelatine paper covered an immense amount of space and some of them were of heroic size, but we could not see much improvement in quality over the work of last year, except in one instance, which we elsewhere note.

In this connection we may mention a cause for anxiety, or sound an alarm, if you please, viz.: We think we observed that some photographers are growing careless with direct silver prints, because of growing familiarity with and manufacture of bromide enlargements. What is "good enough" for the latter is surely not up to the standard in sharpness, in distinctness, and in tone for silver prints. Do not grow careless with the idea that you are enlarging your facilities as well as your work. This is only a hint and no fault-finding with that new and useful power given our art by the introduction of bromogelatine paper.

The enlargements were by no means all on bromogelatine paper. The splendid silver prints of Messrs. Harvey & Lyles, Chicago; E. Long, Quincy, Ill.; and Kuhn Bros., St. Louis, Mo., maintained their own, and were first class; the lovely platinum prints of Messrs. Willis & Clements, Phila.; and the spray carbons of Mr. W. H. Sherman, Milwaukee, Wisconsin; all had their admirers and champions, and were well worthy of the highest praise.

In the finishing of enlargements, the *Air Brush* seemed to take the lead both in crayon and colored, and its merits were shown by the inventor and his wife. We understand that the jury would have awarded the medal for this work had it been done by "hand." Mr. George Hammer Croughton divided the honor by demonstrating the ease and elegance with which bromide enlargements could be finished in crayon and water colors. All these finished results were first class, and done by master hands.

Take it all in all, there was much to be seen and learned at this Exhibition. Of the exhibit of apparatus, etc., we speak elsewhere.

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### THE EXHIBIT OF THE MANUFACTURERS AND DEALERS.

This department of the exhibition was the most crowded—so much so, that in order to prevent it from emptying the meetings of the Convention almost entirely, a wooden fence was stretched across the building by order of the Executive Committee in order to prevent the entrance of photographers during the time of the sessions.

The display was a very extensive and attractive one. Alcoves, pyramidal uprights, enclosures, tables, glass cases, and fanciful erections were covered and surrounded with all those tempting tools which the good photographer covets, together with many examples of work produced by them. Not only were apparatus and improvements shown, but there was really a secondary exhibition of photographs made by the plate workers from all parts of our country. There was so much to see and one was so inveigled by the persuasive and enthusiastic descriptions of the merchants present, that

time ran away before one could scarce enjoy a tithé of what wns there.

The largest space was taken by the Blair Camera Co. jointly with the representative of the Cincinnati branch, Mr. L. M. Prince. Their display of cameras and tripods was what one would expect from such an enterprising house—a fine array of everything in their line, from the tiny “feather-weight” holder to the strong and graceful 20 x 24 reversible-back cameras. Polished brass and nickelplated trimmings glittered upon the splendid apparatus made of the highly polished hard wood of Southern climes. Mr. T. H. Blair was present in person, with his brother Mr. E. C. Blair, and the large enclosure devoted to the Company’s exhibit was thronged continually.

The Chicago *Times* said of this exhibit:

“Probably no camera manufactory in the world can show in stock a variety of styles and designs of light-weight cameras equal to those represented in the Blair section of the material exhibit of the Photographers’ Convention now being held in the Exposition Building. The photographers of Chicago, and all the innumerable large towns tributary to the Garden City, will be gratified on hearing that the Blair Camera Company, of Boston, Philadelphia, and Cincinnati, will open a branch establishment at No. 206 State Street, Chicago, on the 20th of the present month. In the material exhibit the Blair Camera Company present to the fifteen hundred photographers who are in attendance daily all of the latest improved appliances and materials used in the production of the perfectly artistic exhibits shown by this company.

“In many cases the exhibits of the art department proper were created by the Blair cameras and other apparatus. While a speciality is made of cameras, the company manufacture or carry in stock every accessory and aid in practising the art. The price-list issued by this house and mailed on application contains, in addition to the usual information, the very best “points” that all beginners wish to obtain. The Blair Camera Company pays the largest rental and occupies the greatest space among the exhibitors, over 1535 square feet, a

space which is completely filled, and stocked with every requisite and aid toward successful photography.”

Scovill Manufacturing Co., N. Y., occupied a large open enclosure and a covered one adjoining, where several attendants devoted themselves to the answering of queries concerning the famed apparatus of the American Optical Co., of which there was a finer display than any ever made before.

The meeting of the Merchants Board of Trade being held during the week, attracted about fifty dealers from various sections. Many of them met their customers at these fine collections and “took care” of their interests. This meeting of friends was one of the pleasantest features of the whole grand affair.

Mr. W. Irving Adams was present in person with his son, Mr. W. I. L. Adams, Editor of the *Photographic Times*.

The exhibit of Messrs. E. & H. T. Anthony & Co. was in the centre of the hall and consisted of a large circular enclosure from the centre of which rose a cone-shaped upright, on the sides of which were hung the splendid collection of enlargements upon their new bromide paper, which had been sent in competition for their prize offers. Around the enclosure were counters upon which a splendid array of apparatus, Cooper’s Enlarging Lanterns, pyramids of bromide paper, and an assortment of useful articles were placed. In addition, they provided a dark-room where the interested attendants and the curious public were shown the process of developing prints upon Anthony’s New Bromide Paper. How this novel idea of the exhibit attracted the public may be learned by the following from the *Chicago Times*:

“Come in and see how the large photographs are made on our new bromide paper, just out,” said a representative of Messrs. E. & H. T. Anthony & Co., of New York, at the Photographers’ Convention at the Exposition Building. Following a guide into a dark room especially prepared for the purpose, and in which there were perhaps twenty people, all good critics, a novel sight was experienced. The room was lighted by a ruby-colored light, the negative used being of ordinary cabinet size. The focus was

made on a sheet of plain cardboard. The bromide paper, 20 x 24, was placed in position and the cap removed from the lens. The seconds passed by until 118 of them were marked up, when the cap was returned. No change had yet taken place on the paper. The artist placed it on the developing tray, when there slowly appeared the half life-size figure of a handsome woman. Of the score or more people present, many of them were professional photographers, nothing but exclamations of surprise and satisfaction were heard. 'I like that,' said one. 'It gives us a chance to decide as to the proper development. Most kinds of prepared paper develop so quickly that there is no opportunity to decide as to the light or dark shading, hence the picture is often unsatisfactory. With this paper the development can be arrested at will.' "Messrs. Anthony & Co. are importers, manufacturers, and dealers in photographic material, with headquarters at No. 591 Broadway, New York," said *The Times* informant, "and they are also extensive publishers of photographic literature, including *The Photographic Bulletin*, a semi-monthly, edited by Prof. Chandler and Dr. Elliott, of New York. This magazine has a full staff of practical men, and enjoys a very large circulation in this country, England, Germany." The newly-patented 'Cooper enlarging camera,' which can be used with natural or artificial light in combination with their new bromide paper, is creating a revolution in photographic circles. Messrs. Anthony & Co.'s exhibit comprises, among the hundred and one things indispensable to producing perfect pictures, a full line of Climax cameras from twenty by twenty-four down to the smallest sizes. Dallmeyer's lenses are kept in stock, although the firm manufacture lenses of their own. A very fine line of cameras was noticed in handsome Circassian wood with nickel trimming. 'Detective' cameras, by which instantaneous exposure is attained through a very ingenious mechanical device, are worthy of special mention. The new roll-holder for using paper instead of glass plates is a great favorite with the artists. The 'Anthony' amateur outfits are known and appreciated

all over the world. Ladies and gentlemen who visit the exhibition on Friday should try hard to induce the representatives of this company to allow them to witness an enlargement made in the dark room."

The Chicago dealers were all represented. Messrs. Smith & Pattison devoted a large part of their department to their Improved Duplex Rotary Polisher and Quadruplex Enameler, the merits of which are known to everybody. Their display was superintended by Mr. Pattison in person.

Their chief exhibit was at their store, which we notice elsewhere in detail.

Messrs. Sweet, Wallach & Co. draped their enclosure with tasteful curtains and draperies, such as they sell for photographic use, and once inveigled within that attractive enclosure, the photographer rarely left it without first leaving an order for some of the goods displayed.

Messrs. G. A. Douglass & Co., and Messrs. N. C. Thayer & Co., both had enclosures where they met their patrons and directed them in their choice of apparatus and so on.

Messrs. N. C. Thayer & Co. were represented by Mr. Thompson.

Mr. H. A. Hyatt, of St. Louis, in person superintended his space. Among other things the Stamp Patent exhibit of Messrs. Kuhn Bros. always attracted many interested observers.

Messrs. Wilson, Hood & Co., of Philadelphia, made a fine display of Osborne's Accessories and Backgrounds and sold their entire exhibit. Mr. Kennington was their representative.

Messrs. Allen Bros., Detroit, Mich., represented by Mr. Orville Allen, made a fine showing of the Suter Lens and held a crowd by the exhibit of fine portrait and landscape work produced by their popular lenses.

The Gundlach Optical Co., Rochester, N. Y., represented by Mr. Turner, had a collection of their fine instruments, to the merits of which many a photographer was won.

Messrs. W. H. Walmsley & Co., Philadelphia, represented by Mr. Walmsley, Jr., exceeded all their former displays of Beck lenses and apparatus.

Messrs. B. French & Co., Boston, repre-



sented by Mr. W. A. French, made their usual exhibit of Voigtländer and Darlot lenses. An exhibition would hardly be complete without this exhibit, which was always one of the chief attractions of "the old N. P. A."

The Air Brush Mfg. Co., in addition to their demonstrations, made a fine exhibit of work done by the Air Brush and of the pictures sent competing for the two prizes offered by the Company. The prize-awards were all mentioned elsewhere.

Mr. J. W. Bryant, La Porte, Indiana, made the largest exhibit he ever had, showing extensive growth of business and enterprise. His backgrounds, papier mache, and profile accessories are growing greatly in favor.

The successful painting of photographic accessories in oil has been accomplished at last by Mr. Bryant. They will not rub or spoil the most delicate draperies. They do not smell, and are vermin proof. They retain all the soft delicacy and beauty of water colors, without any of its disagreeable features.

Mr. L. W. Seavey, New York, "had a whole carload" of his manufactures there.

The Acme Burnisher Co. was represented by two members of the company, and exhibited all sizes of their manufacture. The merits of the Acme chiefly are that no moisture condenses on the feed roll or polishing tool, owing to the air-chamber which runs through the rolls. The roughened feed-roll always remains the same, and the burnisher is quickly heated. This last advantage is due to confining the heat in an air-chamber, which also secures a uniform supply of heat. The ingenious lamp may be employed for other uses in the studio, such as making emulsions, starch heating, water, etc. Patents for the Acme have just been obtained for England, Germany, and France.

Messrs. Brown & Goldsmith, Springfield, Mass., introduced an entire novelty—"The Sensitized Paper Preservative." They say by the use of this preservative you silver enough paper to last you one, two, or more weeks, and put it away and draw from it for each day's use as desired, thereby avoiding the annoyance of being without paper

when most needed. For the man that does a large business it is valuable because his help can silver enough on a stormy day for several days' use, and can rely upon its keeping white and in perfect working condition, if not used for two or more weeks. Paper can be silvered at night and be ready for use the next day, or when the sun shines without any anxiety in regard to weather or keeping the paper. The preparation will be put up in packages, and is sold by all the dealers. It is a great saving of paper and silver undoubtedly.

The greatest interest was held by the dry plate-makers.

The veteran, Mr. John Carbutt, of Philadelphia, was there in person with a continuous crowd about him, listening to his wise words of experience and instruction, but he made no exhibit.

The M. A. Seed Dry Plate Co., of St. Louis, with Mr. Leeson as chief of their representatives, and Mr. Huiskamp, Treasurer of the Company, present, not only made a great display of plates, but had a gallery of pictures to show forth their excellences. A group of bicyclists was admired by every one, the plate upon which it was made (20 x 24) being rich and uniform from edge to edge.

The Stanley Plate Co. made its exhibit, with that of Messrs. E. & H. T. Anthony & Co., Agents, and was presided over by Mr. Stanley. The following excerpt from a circular distributed will give a bit of history as to these excellent plates, which will be at once understood:

EXHIBITION HALL,  
PHOTOGRAPHERS' ASSOCIATION OF AMERICA,  
CONVENTION AND EXHIBITION,  
August 9 to 12, 1887.

DEAR SIR: Acknowledgment is hereby made of the receipt of photographs made from Stanley plates, in competition for the prize of \$100 offered by the Stanley Dry Plate Co. for the best work on their plates, from the following named photographers:

Scott, Chicago, Ill.; Elton, Lyons, N. Y.; Decker & Wilber, Cleveland, O.; A. Nae-geli, New York City; Kensington Art Studio, Brooklyn; A. E. Atkinson, Schenectedy, N. Y.; I. H. Stoddard, New Haven, Conn.; H. McMichael, Buffalo, N. Y.;

Stuart, Hartford, Conn.; Pach Brothers, New York City; L. B. Duryca, Brooklyn, N. Y.; W. Gray, New York; Marshall Bros., Cazenovia, N. Y.; J. J. Milliken, Bellefontaine, O.

These exhibits were placed in the best manner possible under the circumstances of location, etc., and referred to a committee to award the prize. The award was made as follows, on August 11, 1887, and announced at the meeting of the Convention held on August 12th.

OFFICE OF "THE PHOTOGRAPHIC BEACON,"  
EXHIBITION BUILDING, CHICAGO, ILL.

The Committee appointed to award the prize offered by the Stanley Dry Plate Co., hereby report that after careful consideration they have awarded it to the exhibit of H. McMichael, of Buffalo:

JOHN W. NICOL,  
Editor *Photographic Beacon*,  
S. V. COURTNEY, Canton, Ohio.  
C. W. MOTES, Atlanta, Ga.

The Stanley Dry Plate Co. extend their thanks to each of the exhibitors named, and congratulates them on the excellence of their work.

E. M. ESTABROOKE,  
Agent and Demonstrator.

The Elton exhibit was all on Stanley plates. Two gold medals and a silver one were awarded Mr. Elton.

The Eagle Dry Plate Co. was represented by the genial Mr. Weustner, and made a fine show by lining the sides of a large enclosure with pyramids of boxes of plates and with a magnificent collection of foreign and American pictures. Every visitor who registered at the "Eagle" headquarters was presented with a packet of fine cabinet pictures from foreign and American negatives, made upon the Eagle plates, as a souvenir.

Doubtless this generous act secured many a patron, and will serve as a lasting advertisement. It gave something substantial to the visiting artists, from which they could learn something. Moreover, each picture was a study in the art of printing, having been printed upon Mr. Gennert's importation of Dresden paper, known by everyone as the "Eagle" brand. Certainly the "Eagle" enclosure was one of the most animated in the building.

The Smith & Harrison Dry Plate Co., Iowa City, made a fine display also, and Messrs. Smith and Harrison, and their right-hand man, the veteran favorite, Mr. Pickerell, were all present, expatiating upon the merits of their new plates. Already they are doing a splendid business and exhibited a fine collection of pictures.

To catalogue the attractions of the exhibit of the Cramer Dry Plate Works, St. Louis, would require several pages of our magazine. It consisted of a superb collection of landscapes and portraits and was alone worth a long pilgrimage. There were the fine Niagara views of George Barker; the Rocky Mountain views of W. H. Jackson; the Genre groups of G. Cramer; and splendid portraits by Messrs. Guerin, Hardy, Ryder, Gilbert & Bacon, Place, Dana, Appleton, Marceau, Landy, Wise, Montfort & Hill, Chilman, Courtney, Scholten, Rösch, and many others, arranged upon high uprights on easels, counters, and in all directions, while over all were the cabalistic words, "On Cramer's Plates 35."

The one picture which attracted the most attention was by Rösch, of St. Louis. It was called "Ten Miles to Chicago" and represented a youthful photographer enroute for the P. A. of A. exhibition. His "traps" were in a wheelbarrow which he was pushing, with his plentiful lunch of "crackers and cheese" and upon the top of all his "sky terrier" and sympathizing chum.

It was a very creditable and amusing picture and is better explained by the verses which were inscribed below it, as follows:

*Ten Miles to Chicago.*

The time was in August,  
A hot, sultry day,  
When Binks from the country  
To Chicago made way.

Fired with ambition  
From his gallery he went,  
To be at the Convention,  
His work to present.

On account of the law  
His hat was not chalked,  
So he packed in a barrow  
All his stuff, and he walked.

Onward he plodded, when  
Sudden a stop,  
And crash the developer  
Fell from the top.

A stone in the road  
Had caused the disaster,  
And the poodle on top  
Felt as bad as his master.

Not far from the spot  
On a sign-board he read  
"10 miles to Chicago," so  
He pushed on ahead.

And weary from travel but  
With hope in his heart  
He came to the city  
His views to impart.

The Eastman Dry Plate and Film Co., were represented by Mr. Eastman in person and several salesmen, including Messrs. Jones and Bellsmith. Each of their chief manufactures, dry plates, film negatives, apparatus, and bromide paper, were splendidly shown up. It is often good to know what the public thinks of us, and this is what the *Chicago Times* said :

The twelve life-size photographs on the left on entering the Exposition building exhibited by the Eastman Dry Plate and Film Company, of Rochester, N. Y., are a revelation in picture-making, not only to the ordinary person who longs to pose as a subject, but to the best-informed citizen who believes he is acquainted with all that pertains to modern photography. They make an astonishing combination, being the largest ever exhibited, and their appearance in our city might well be marked with a white stone. These portraits are produced from small negatives, being enlarged on permanent bromide paper. For all practical purposes the process by which they are produced is simply photography on a large scale from the negative instead of the original. In the rear of the large pictures exhibited by the Eastman Company will be found another exhibit which possesses a unique interest. The eminent photographer, M. Paul Nadar, of Paris, in sending specimens of his work on the Eastman Company's paper, has made a most happy selection. Here may be seen three wonderful

portraits of M. Chevreul, the savant who achieved his century some time ago. The counterfeit presentments of M. Pasteur, Mary Anderson, Gen. de Gallifer, Sarah Bernhardt, and other brilliant lights of the Parisian world also give token of the estimation in which the paper of this American company is held by the first of European photographic artists. About forty other exhibits, all by this process, will well repay the closest artistic scrutiny. The Eastman Company also has in the stock-dealer's department a very fine exhibit of apparatus, consisting of cameras, roll-holders for paper and film negatives, and enlarging apparatus.

#### EASTMAN PRIZE AWARDS.

Judges: W. H. Potter, Indianapolis; E. Poole, St. Catharines; H. McMichael, Buffalo.

Number of entries, 42.

Prints exhibited, 343.

#### *Plain Enlargements.*

Class A.—\$150 for the best collection of unfinished enlargements, J. F. Ryder, Cleveland.

\$75 for the second best, Kuhn Bros., St. Louis.

Class B.—\$50 for the best unfinished portrait enlargement, J. F. Ryder, Cleveland.

\$25 for the second best, Hulburt Bros., St. Louis.

Class C.—\$25 for the best unfinished enlargement from landscape or marine view negative, W. S. Bell, Pittsburgh.

#### *Contact Prints.*

Class D.—\$50 for the best collection of contact prints, W. H. Walmsley, Philadelphia.

#### *Finished Enlargements.*

Class E.—\$100 for the best enlarged portrait finished in black and white, J. Weber, New York.

\$50 for the second best, J. F. Ryder, Cleveland.

\$25 for the third best, J. C. Strauss, St. Louis.

Class F.—\$100 for the best enlarged portrait finished in color, J. C. Strauss, St. Louis.

Mr. J. Inglis, Rochester, N. Y., astonished a good many by the excellence of the prints made upon his new paper, which he calls "Argentic Bromide Prints." They have a peculiar clearness and brightness, free from any gray haze, which renders them superior.

Messrs. Buchanan, Bromley & Co., of Philadelphia, caused a great deal of admiration by their exhibit of platinum enlargements. They exceeded, in our opinion, anything else shown in that line, and were a revelation to many who had never before known what lovely pictures could be had by this fine process.

The McIntosh Galvanic and Faradic Battery Co., Chicago, made a fine display of magic lanterns, microscopes, and optical goods. These goods are first class and no one can show them so aptly as Dr. McIntosh, who was there.

Mr. George Murphy, of New York, was present in person and met a large number of his patrons.

There were many other exhibits, but we cannot pretend to catalogue them fully in the space at our command.

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### CHEER UP!

As an attendant at the Chicago Convention, I saw much to cheer and much to depress me as I looked at the work, and at the meagre attendance upon the meetings of an association of representatives of the art of photography. My friends, you are the disciples of the sun, the students of science, the servants of art, and the vassals of bread and butter. This was never so plain to me as at Chicago.

If a composite photograph were made of you, no matter which of you posed as the bottom fact, or which of you had the last chance of casting beauty upon the result, the picture would be just the same—it would be *bread and butter*.

There were once halcyon days for photography, when it was the robin redbreast of modern discovery. Its sky was full of rosy clouds, and its greensward was a place of singing, cooled day and night by the dew of novelty.

Photography was then a twinkling phan-

tasmagoria which excited the favor of friends who were sympathetic, gullible, and believing. Its following was a beguilement. That day is ended. Our planet rides higher now, and its light is more diffuse. The shadows are shorter, there is less play and more earnest toil. The early birds after the sluggish worm which lodges and lingers in the coolness of twilight are now a multitude—all English sparrows instead of robin redbreasts—and the noise and bustle of occupation has grown apace. Not the agreeable and the beautiful, but the necessary are in demand.

As you have shown up the possibilities of your art, the exactions have been heaped upon you, and if you show that you can fix a thunderbolt upon your ever-willing plate, immediately the world wants two thunderbolts for the same money. If you bring down the softly lighted visage of the man in the moon, with a heart-breaking indifference the world demands, where are the women and the children?

But I fear my balloon is soaring too high. I will drop out some ballast and come down a little. In simple words, I wanted to call attention to the contrast between the condition of our art to-day as a whole, with its condition, say, a quarter of a century ago, and then ask you not to grow despondent. Our prices are low down, but our work averages very high. We have degraded our art by our compulsory "cutting," but our art has made great strides upwards. I can see that the public are at least getting tired of presenting pictures to each other with the name of a "cheap" photographer upon them, and are looking "higher."

Therefore, let us cheer up and chirp along until our feathers change again from the grayness of depression to the brighter tints of prosperity and advancement. It is coming near now. A. D. DRESSER.

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### PRINTING PERPLEXITIES.

THE perfect removal of hyposulphites from photographic prints, in the shortest space of time possible, is a desideratum worthy of study by every lover of photography. Having made a few experiments to test the value of *osmotic action* as an aid

in washing prints, and believing that hyposulphite can be removed in a shorter time by this method than any other known, excepting, probably, the treatment with peroxide of hydrogen or chlorine, both of which agents are apt to injure the finer half-tones, I offer the following, hoping that it may be of interest to the practical photographer: When a print is removed from its hypo fixing bath, and thrown into a vessel of warm water, a strong osmotic action takes place, the albumen film acting as an excellent *septum* to the thousands of *hypo vesicles* just beneath. At a temperature of 130° Fahrenheit, the paper rapidly gives up its hyposulphite, and this strange action soon becomes much weakened, and unable to give up the remnant of the pernicious salt, unless agitation or other mechanical means is brought to its assistance. If, however, after a few minutes the print, which has now lost the greater portion of its hypo, be transferred to a ten per cent. solution of (tribasic) *phosphate of soda*, a stronger and more rapid osmosis is again set up, and much of the remaining hyposulphite is soon diffused in the solution of phosphate of soda. If further, at the end of eight minutes, the print is transferred from this solution to a new portion of warm water, the (reverse) action is continued, and, by a dozen such alternations (using fresh portions of the liquids at each transfer), the print may be freed from its destructive enemy within one hundred minutes, if the temperature of the liquids is kept up as high as 140° Fahrenheit, and eight minutes be allowed for action on each liquid; lastly, the apparently harmless phosphate may be sufficiently removed by short treatment with successive portions of hot water.

The apparatus which I use for the convenient working of the process, consists of a couple of two-gallon tin cans, with faucets soldered near the bottoms; these may be placed on an iron stand, and the temperature of the solution and water maintained at 140° by a Bunsen burner, which may be shifted from one vessel to the other, as occasion requires. The deep porcelain trays in the market, serve admirably as washing vessels in small operations. The cheapness of ordinary phosphate of soda makes the

process an economical one; moreover, the *quantity of solution* required is just sufficient to cover the prints well, and allow of gentle agitation, that they may be kept separated, to allow of uniform action. *Phosphate of soda* was adopted on account of its great osmotic power. Chloride of sodium was tried, but found too weak and slow in its action. It is well known that all *septa* allowing rapid osmosis are more or less injured by *chemical action*, but, in this case the albumen suffers so slightly as to withstand all but microscopical scrutiny.—W. J. LAND.

### THE WORLD'S PHOTOGRAPHY FOCUSSED.

**A NEW OPTICAL GLASS.**—The invention of a new optical glass is said to be creating a sensation in the German scientific world. The glass, owing to its great refractory power, promises to be of marked influence in practical optics, inasmuch as it will admit of the production of lenses of short focal distance, such as it has hitherto been impossible to obtain. For microscopic photography it will be of the greatest importance.

**PIVOTAL APPARATUS FOR WASHING.**—At the London Photographic Society, Mr. L. Meldon exhibited to the members the washing apparatus for plates or prints, which is used at the astronomical and meteorological observatory of Stonyhurst. The dish is divided into two compartments and placed on a central axis which causes it to tilt as soon as one of the halves is filled with water, in this manner the full compartment empties itself, whilst the other fills, and the action is continued automatically as long as may be desired.

**THE PHOTOGRAPHY OF FIREWORKS.**—M. Barral, of the Medical Faculty of Lyons, has made the photograph of a display of fireworks, and was thus able to ascertain the photogenic action of flames and rockets of divers colors, as well as their trajectory and their termination. The fireworks were set off about fifty yards from the house in which he lives; M. Barral was, therefore, admirably placed to make the photograph. The exposure was about fifteen seconds to obtain

a sufficient number of rockets detached from the background. He made use of the Henderson plates, with a Derogy objective No. 3, without a stop. The mode of development is also an important point. After many experiments, M. Barral chose for the

instantaneous photographs, the developer of M. Mazot, photographer of the establishment of M. Bourdin, of Lyons. This is an iron developer, not oxidizable in the air, and gives excellent results, especially when the negative is slightly underexposed.

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## Editor's Table.

Mr. H. McMICHAEL, Buffalo, N. Y., has favored us with a number of duplicates of the splendid full sheet prints exhibited by him at Chicago.

Mr. McMICHAEL is one of the photographers who *continues* to grow. Each year we notice this in his work. The pictures before us are lovely and soft because of their skilful lighting and "development with head," and yet they are full of vigor and technical strength. There is a charm about them which can only come from scientific and artistic care. Our readers shall soon be treated to an example of Mr. McMichael's prize-winning work.

Mr. H. BUTLER, Vermilion, Dakota, was at the Convention and presented us with some more of his admirable snow scenes. Mr. Butler's artistic sense leads him to find many a picturesque bit which the every day camera worker would pass by. And he is a fine manipulator as well.

NO ONE must feel slighted if we have failed to notice their exhibits at Chicago. We will gladly call attention to any oversights that would be useful to our general reader, if informed. Our purpose has been to bring out the lessons of the exhibition rather than to give a catalogue of the exhibits.

Our double duty at the sessions and to our readers who could not come made the exactions upon our time continuous.

*Quarter Century* was on exhibition at Chicago and was sold to a large number of attendants. Some of the earlier buyers took the trouble to come and say how useful the book was.

The Canadian Government recently ordered a copy for the use of the W. S. Dewey Topographical Survey of the Rocky Mountains. The new book is gradually moving all over the

land. Some copies are on their way to Australia.

THE N. C. THAYER & Co. \$500 prizes were sharply contested for. They were both captured by Mr. H. ELLIOTT, of Marion, Iowa.

OUR FLORENCE MEDAL.—Our editorial friends generally congratulate us on our Florentine medal. Here are some proofs:

"At the Exhibition at Florence Dr. EDWARD L. WILSON of THE PHILADELPHIA PHOTOGRAPHER received a silver medal for a complete set of his journal from 1864 to 1887. We tender the doctor our congratulations."—*Anthony's Bulletin*.

"Edward L. Wilson, Ph. D., was awarded a prize at Florence, and American photographers must take it as a compliment to them, as it is intended as such—Dr. Wilson being represented by a display of his journal for several years, and not by a display of photographs. We congratulate the learned doctor in getting the Italian medal."—*The Eye*.

ALL the American photographic magazines were represented at the Convention by their editors in person.

A THOUSAND congratulations to all concerned in the Chicago Convention might be offered, but they would not suffice, and we withhold.

A HUNDRED and more wise changes can be made for the future good of all concerned. We shall presently make some suggestions.

MINNEAPOLIS—1883!!

The complete list of personal and P. A. of A. prize awards will be given in our next. More would be given now but for the tardiness of the official stenographer.





Brown Photo.  
T.V.E.S.

"THE NEW SOUTH"



THE

# Philadelphia Photographer.

EDITED BY EDWARD L. WILSON.

Vol. XXIV.

SEPTEMBER 17, 1887.

No. 306.

## OUR PICTURE.

We clear the way this issue for a picture full of life and go, which we are sure our readers will appreciate. It is by a process which is growing as rapidly as is the growth and development of the "New South." Mr. E. E. Brown, of Asheville, N. C., from whose negative the Photo-engraving was made direct by the Ives process, is an artist in feeling, and is doing a great deal to work up the *genré* side of the progressive colored population in the South.

He can see humor as well as a picture afar off, and seems to have the knack of reproducing the pictures of daily life which surround him, true to nature.

"The New South" needs no praise or explanation from us. It is admirable. Every one who sees it will feel it, if he has any feeling in him, as well as understand why Mr. Brown has chosen such an apt title for it.

If our models would always enter into the spirit of the occasion so heartily as has been done on this occasion, we would have many more splendid examples of *genré* work. We do not see how any one could have been more responsive than this amiable youth of the "New South." His picture will spread the infection of his smile over the whole land and across every sea. With the diffusion we desire that our praise and thanks should also go. And Mr. Browne deserves our thanks again as well as commendation for the artistic and technical excellences of his picture. One of the outgrowths of his

fame at home has been a new first-class studio, which he has just occupied.

It is worth a name aside the highest reaches of our art, and we are glad to do what we can to place it there.

We have had so much in our pages about Ives' excellent photo-engraving process that we need add nothing to the fine example of his production given by the "New South." Who will venture to send us something better?

## REVIEW.

WILSON'S QUARTER CENTURY IN PHOTOGRAPHY: Forming a Complete Text-book of the Art. Price \$4. By EDWARD L. WILSON. New York: Published by the Author, 853 Broadway, 1887.

WE have here by far the most complete, handsomely got up, and comprehensive handbook of photography that has been issued in the English language—a book which every photographer, whether professional or amateur, should make a point of adding to his library. We understand that arrangements are being made for publishing the work in England, but, in the meantime, copies may be ordered from a foreign bookseller—as Trubner, of Ludgate Hill; Nutt, of the Strand; or Williams & Norgate, of Henrietta Street, Covent Garden.

The author—who evidently wished, above all, to make a thoroughly practical book—wisely refrains from writing a long chapter on the history of photography, but the four pages devoted to this subject are concise and

to the point. The theory of photography, light, and the first notions of what the camera is, are also briefly dealt with; after which we come to rather over forty pages devoted to the study of lenses and diaphragms; this subject being treated of in such a way as to tell the reader just what he is likely to want to know. After this comes a main feature of the book—namely, the sections devoted to what may be roughly called studio practice. The construction of the glass house is first dealt with, both as regards general design and as to detail, after which studio accessories and fittings are treated of; and, finally, the various styles of camera and camera fittings are described. The chapter on studio practice alone will repay the professional photographer for buying the book.

The matter referred to takes us about one-fourth through the work, and the rest is devoted to the application of art principles, out-door operations, exposure, chemicals, dark-room contrivances, negative making (wet), negative making (dry), negative making (paper and film), retouching and doctoring the negative, printing on albumenized paper, various printing processes, color-sensitive photography, photo-engraving, lantern slides, and transparencies.

Wilson's handbook is illustrated with about three hundred and fifty engravings, and as regards print, paper, and binding, deserves no less praise than on account of the usefulness of the matter.—*Photographic News*.

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But here is the dodge: Your paper folded, lay your pattern-glass on the paper so there shall be a little margin all round the glass, hold paper and glass firmly with your left hand—providing you are a right handed man—now with a pair of shears cut around your glass, and you have eight photographs trimmed ready for toning as soon as they shall have been printed. Some object to trimming before printing, on the ground that it is more difficult to lay the paper on the negative; true, but I have practised it for five years, and I don't find any trouble in doing it as quick and getting them as true as when I cut after printing.—CHAS. LEWIS.

## PERTAINING TO THE



## PROCEEDINGS OF THE CHICAGO CONVENTION, CONTINUED.

### THIRD DAY.

THE session opened at 10 A.M., with Presi-Cramer in the chair. Invitations were read from the Texas State Photographers' Convention, to begin October 27th, at Dallas, and to continue three days, and from Mr. C. F. Sterling, of Bay City, Michigan, to assemble for the annual group at 2.30 P.M., in front of the Exposition Building.

A letter was read from Mr. VonSothen, presenting a paper to be read.

The revision of the constitution was now acted upon. The amendments were taken up by section, and finally adopted as a whole. All members will receive a printed copy.

The award of the Medal of Progress was next considered, and it was resolved to have a ballot-box placed near the door for receiving the votes.

After much discussion, Minneapolis, Minnesota, was decided upon as the site for the next Convention.

On motion, it was resolved to hold a special session in the evening, for the discussion of practical matters.

The announcement that the election of officers for the ensuing year was in order, seemed to be the signal for a general stampede. The little interest shown in this very important part of the Association work, grows less year by year, and this year the election became a mere farce. Out of over eight hundred members present in the hall, only *thirty-seven* votes were cast for Mr. E. Decker, of Cleveland, Ohio, for President, and that being a majority of the votes cast, Mr. Decker was, after a third ballot, an-

nounced as having been elected President. Such an election is neither a compliment to "the Association's choice," nor a credit to the enthusiasm of the membership.

A number of private matters which should never have passed beyond the Executive Committee, were allowed to take up the time of the Convention, because of the disgraceful arguments which followed, but the all-important matter of the election of officers was treated with sublime indifference. If a fourth ballot had been reached, we believe ten votes would have placed the future welfare of the Association in the hands of one man, personally known to but very few of its members.

#### THURSDAY—EVENING SESSION.

The Convention was called to order at half-past seven o'clock.

Dr. A. H. Elliott, editor of Anthony's *Bulletin*, read a paper on "A Search for a Substitute for Hypo," and was followed by Mr. J. F. Ryder, who read "Killed by Over-dose."

Both gentlemen were given a vote of thanks.

President elect Decker was then introduced by President Cramer, and made a short address.

President Cramer then read his paper "On the Treatment of very Sensitive Plates." This was followed by the first practical discussion which had yet taken place, and we give the report of it about as it came to us from the stenographer, without assuming any responsibility as to its correctness. The report comes to us from Secretary Bellsmith, "revised" by order of the Executive Committee, and we trust our readers will filter out from it some interesting and useful matter. It reads as follows:

Mr. Bellsmith.—I move a vote of thanks be given Mr. Cramer for his very able paper.  
Seconded, and carried.

Mr. Inglis.—While it is very interesting to hear the papers read, would it not be well to devote a little time to discussion, for questions and answers. It will give a little life to the session, and perhaps result in more practical good. These papers, while all valuable and interesting, will be published in the journals. I have no doubt many

members have questions to ask, and should have an opportunity to do so. I therefore move that we spend half an hour in this way.

Seconded, and carried.

The President.—That was the object of reading the papers—to induce discussion. If any of the members have any questions to ask, now is the time.

Mr. Cross.—I wish to say this one point on the matter of development. The point of having alkali is well understood, its nature and proportion, and of the developing agent of pyro; that has all been talked about.\* But one feature, I think, has not been dwelt upon sufficiently, and that is, the intensifying action of the soda—the sal soda—that is an intensifier just as much as your pyro is, up to the fogging point, and just as powerful, and more so; that is the point I wish to emphasize. Up to the hazing point it is more powerful than pyro itself in giving density. If you look upon the pyro as a density giving agent, it is not, unless it is the neutralizing agent of the sal soda. You have to show the energy to produce that before you get the action. A variety of substances produce new results, consequently you do not want to consider your pyro as a density giving agent; consider your sal soda as that, for it is, just as much as the pyro, up to the hazing point, and is a beneficial one, except where you have under-exposure. You can gain density and save pyro by using the maximum quantity of sal soda up to the hazing point.

The President.—Do any of the members wish to express themselves on the subject under discussion, the development question?

I would say, for myself, in regard to Mr. Cross' remarks about using too much alkali in the solution, that it causes a haziness of plate, and if you "over-dose," as Mr. Ryder calls it, will produce fog. In winter you can use more alkali than in summer, owing to the temperature. If you wish to ask any questions on the subject, now is the time.

Mr. Inglis.—For the benefit of the photographers here, I would ask Mr. Carbutt to give a few points upon the use of a cold developer in summer. You refer to it in your paper, Mr. President, advising a cold developer.

Mr. Carbutt.—On what particular point do you want information?

Mr. Inglis.—On the point you spoke about this evening—change of temperature, changing from a low temperature to a high, causing frilling.

Mr. Carbutt.—Many photographers have received instructions that in warm weather they must use their solutions as cold as possible. Now there is one degree of cold to which you can go with safety, under the conditions that the other solutions should be as nearly as possible of the same temperature. It is not right to reduce the temperature in your developer to, say, 40 or 50 degrees, and immediately after development pass your plate into a solution 80 or 90 degrees. Gelatine is very susceptible to heat and moisture. When in a moist condition you suddenly change it from a cold solution to a warm, its nature is to expand very quickly, whereas, if the conditions were such that you could control the temperature, so that it would not vary more than probably 10 degrees, I believe that a great many failures that those using gelatine plates usually attribute to the plates, would be attributed to themselves in making the change from one to the other of the solutions. Now, it happens that I am blessed with an abundant supply of cold water, having an artesian well. Many times during the summer I am in receipt, as I suppose all plate-makers are, of complaints that such and such a number of plates will not work—that they frill all to pieces. When these plates are returned to me, I try them under the conditions that I have at my factory, and do what I can, I cannot frill them, because the solutions that I use are all of an equable temperature. The water running into by darkroom is not over 60°. It comes from my well at 52°.

I will relate an incident, showing the effect on plates in development. A plate that I make for a special use among photographers is called a "stripping" plate. I was making some last week, and before sending them out, as is my custom, they were put under treatment with alkaline developer, and, to my surprise, it was impossible to keep the film on the plate, it would frill as soon as it got from the developer, and went into hypo, that was standing from the previous night,

and was warmer (probably 70°); the film would begin to loosen, and come right off. I tried putting it into a solution of sulphate of magnesia before developing, and that helped it some, but not sufficiently, and then I turned to the same emulsion coated on the same day, on the ordinary plates, and found it went through all the conditions of fixing and washing without the disturbance of the film, and that set me to thinking it was not in the emulsion, but the tendency of the film to loosen, if the conditions they are worked under are not suitable to them. I then gave my attention to the ferrous-oxalate developer, which is of an astringent nature. As I said, the first batch of plates treated with ferrous-oxalate developer went through the operation perfectly; had no signs of disintegration whatever; and it was owing to the warm and moist condition of the atmosphere in Philadelphia, at the time of the experiment, that the film could not stand the alkaline developer when it would the astringent ferrous-oxalate.

To return to the conditions of temperature. It is in summer that those using gelatine plates should particularly consider their nature, and endeavor to make their conditions of temperature as equable as possible. One of the worst things you can do in summer is to make the first solution you use as cold as possible, without any regard for the future water the plates go into; there is where the difficulty lies. If your developer is 60 or 70 degrees, the fixing-bath of the same temperature, and the wash water of no higher temperature, I do not believe you will have any trouble. If you take your plates out of the wash-water, however, and hang them up in an atmosphere charged with moisture, they will have a tendency to soften, and some will be wrinkled; but if you use the alum solution between the development and fixing, that will not occur. I think that is all I can say on this subject. I am now ready for any further questions.

Mr. Fillberger.—I would like to ask some of the members who are acquainted with chemical action, to give us a little explanation as to how the pyro is a builder of the image, and the alkaline an accelerator, etc., and also give us the action of sulphite of soda, which has been ignored to-night.

The President.—It seems to me that this should be well known, having been so extensively treated in the journals, and published in the directions for using plates. You speak of the intensifying action of the pyro, of the accelerating effect of the alkali—is that it? The effect is, that pyro alone will not develop a plate at all. It requires to be rendered alkaline to act upon a sensitive film. Now, it takes a certain quantity of alkali to start the working condition, and to bring it up to its full power, and if you add an over-dose it results in haziness first, and if you add still more, in fog.

Mr. Fillberger.—You do not understand me; I refer to its chemical action.

The President.—The chemical action of a concentrated developer is to produce a denser image.

Mr. Fillberger.—How does it do it?

The President.—A precipitate obtained by mixing concentrated solutions will be of a coarse and dense nature. If you mix dilute solutions you will get a fine precipitate. So does the concentrated developer reduce the silver contained in the film in a more coarse and dense state.

Mr. Fillberger.—That is the point I wanted to ask. What is the image built up with—pyro?

Mr. Carbutt.—The member wants to know whether oxidation or precipitation takes place. It is the reduction of bromide to silver which takes place in the film. The pyro reduces the silver to its metallic state, and this is the action of the developer.

The President.—Now I will speak once more of the advantage of a cold developer in summer, I do not mean to have it ice-cold. I prepare the alkaline solution just strong enough for winter use, and in summer I dilute it with an equal quantity of ice water (I suppose you all have a water cooler). Just take an equal part of the alkaline solution and ice water, and you will have the right strength and temperature for the summer use. You will find that it works finely. In a hot climate, where there is danger of frilling, I would recommend not to wash it too much after developing, nor to let a stream of water run on it with full power. Leave the plate in a dish, change the water a couple of times, and then pass

it to the hypo solution. All danger of frilling can be avoided by using a strong dose of alum in the bath—as much alum as pyro. The alum will tan the gelatin until it is almost as hard as sole leather after it is thoroughly fixed—so hard that you can hardly scratch the film off the glass with your finger-nail.

A Member.—Does it throw down a deposit?

The President.—I will speak about that. Such a bath with a large amount of alum, will naturally fix a little slower, but it will be an advantage to leave the plate in the bath a little longer, because the film will be rendered more insoluble thereby. If you leave the plate in a sufficient time you can take it out and wash as long as you please. It will be hard enough to stand the water in any climate, even in tropical countries.

Now, the question about precipitate. If solutions of alum and hyposulphite of soda are mixed, a precipitate is formed of sulphur and alum. This ought to be allowed to settle, and the solution should be clear before using it. Now I find an addition of bicarbonate of soda of benefit to prevent further precipitation. We use, for instance, two pounds of hypo, and half a pound of bicarbonate of soda dissolved in one gallon of water, then we mix the two solutions together, and have two gallons of fixing-bath. This addition of bicarbonate of soda seems to keep the solution clear longer than without the addition.

A Member.—Sulphite of soda?

The President.—Well, the sulphite of soda is added to the developer only for the purpose of preventing yellow coloring. It also has the beneficial effect of preserving the pyro from decomposition. Pyro is a substance that has great affinity for oxygen. An aqueous solution of pyro will soon decompose, as the pyro absorbs the oxygen which is contained in the air and water. The addition of sulphite of soda will retard this decomposition, because the sulphite of soda has also a great affinity for oxygen. Now, beside this beneficial effect of preserving the pyro from decomposition, it also prevents the yellow color which would be produced if pyro and alkali were alone used. Pyro with sal soda or carbonate of potassium,

without sulphite, will make negatives as yellow as a lemon. If you add sulphite you will observe the yellow color decreases in the same proportion as you add more sulphite. If you add a large amount of sulphite of soda, say four parts of sulphite of soda to one part of carbonate of soda, you will have little yellow color, if any; a gray negative that resembles the collodion negative of former times. This, I think, fully explains the action of the sulphite of soda.

I have, in my paper, drawn your attention to the difference between sulphite of soda granular and sulphite of soda crystal. The granular is about twice as strong as the crystallized, because the crystals contain almost an equal quantity of water of crystallization. That is the reason why crystallized sulphite of soda is when kept in a warm room found to contain a sufficient quantity of water to dissolve it when warm. This change to the liquid form is not a sign of deterioration. If the temperature lowers again it solidifies to a solid lump, which renders removal from the bottle difficult. I have only mentioned these facts to show that it requires twice as much sulphite of soda crystal as sulphite of soda granular. Now the same may be said of the carbonate of soda (commonly termed sal soda). It comes in several forms. The dried is a fine powder, and is more than twice as strong as the crystals.

A Member.—I have a question to ask. For some time past I have been using dried pyro instead of dissolved; it is recommended in the formula, and I find it of advantage, especially during warm weather, when it is hard to keep pyro dissolved without deterioration, and I think it also has a tendency to work brighter than dissolved pyro. I would like your opinion.

The President.—I will soon answer that question when I come to it. I will first conclude my remarks in regard to the strength of the different carbonates. Carbonate of potassium has about the same strength as dried soda, and you make a mistake if you substitute one ounce of the former for one ounce of the latter.

The gentleman asks if it is not an advantage to use dried pyro instead of in solution. The dried pyro is used by many operators, but the solution is more convenient and ac-

curate. I have found from experience that sulphurous acid is the best preservative for pyro. I have prepared solutions of pyro in water, with the addition of several acids to keep their respective preservative qualities, and have put them on the shelf for a long time. After a couple of months I found all solutions changed materially. The one with sulphurous acid kept best of all. Now I have found that it is not easy to get sulphurous acid in any drug store. I found when we got sulphurous acid from one of the drug stores it had no odor at all; sulphurous acid should have a very strong odor, the same as that from a burning match. I recommend you to prepare sulphurous acid yourself, simply by taking a small quantity of sulphite of soda, and a certain quantity of sulphuric acid. I will describe the action: If you add sulphuric acid to a solution of sulphite of soda, you will find that at first there will be no odor perceptible, as sulphate of soda contains a small amount of carbonate which has first to be neutralized before any sulphurous acid is liberated, which manifests itself by the peculiar odor already described. I recommend the following solution: To 6 ounces of water add 15 minims of sulphuric acid, and 1 drachm of sulphite of soda in crystals. After dissolving, add 1 ounce of dry pyro.

A Member.—Is there any objection to the dry pyro?

The President.—Only that it is inconvenient. There is another thing I would like to mention. The sulphite of soda that you get from the drug store is often almost worthless. I find that even the manufacturing chemists are not careful enough in preserving it. It ought to be kept in close vessels, so that it is not in contact with the air. But the manufacturer keeps it in an open box. It may be decomposed before you get it. It should be perfectly fresh, otherwise it will not have the desired effect.

A Member.—I use my pyro dissolved in alcohol; it keeps very well, and gives quite a nice effect.

The President.—Alcohol is a good preservative, but you will find the solution I have mentioned just as good.

Mr. Barker.—You have alluded to the different strength of different samples of carbo-

nate of soda. I think more trouble has arisen from a want of knowledge of the strength of the different forms that are put up than anything else. I find that in some galleries they use common washing soda, sal soda, in large lumps, crystals, and, perhaps, another gallery is using the chemically pure. Another uses a sample of the crystals in granular form. Now, that form is put up by several chemists, and we have no knowledge whatever, or means of knowing, how much water is driven off.

The President.—I can tell you that. The chemical purity of sal soda is not identical with its freeness from water. You can have dried soda chemically pure. Chemical purity signifies absence of foreign substances.

A Member.—I am speaking of very fine powder.

The President.—That is the dried carbonate of soda of commerce. It is not perfectly anhydrous, or free from water, as it contains one molecule of water. The crystallized carbonate of soda contains 10 molecules of water, and 16 parts crystallized carbonate of soda are equivalent to about 7 parts dried carbonate of soda. The carbonate of soda granular contains as much water as the crystals, and only differs from the latter in form.

Mr. Hall.—I think you are mistaken, Mr. President, in that matter, for this reason. If there was no water drawn off it would naturally run together into lumps more than it does. If you look in the pharmacy you will see that sal soda, or carbonate of soda, will take up 10 molecules of water. The molecular weight of carbonate of soda (anhydrous) is 105. It takes up 10 molecules of water to form crystals. At the heat of 95° it will drive off 60 per cent. of water. Now I suspect this sort of granular state you spoke of has received that treatment. Now the question is, this granular soda that you speak of as being put up by the chemists, how much water is driven off? You think none. I think there must be to keep it in that condition.

The President.—I have it from good authority that the granular carbonate of soda contains as much water as the crystals, and differs from it only in form.

Mr. Cross.—Now, to return to the subject

which was mentioned before, in regard to the various kinds of those different forms of soda. I do not want to be considered a heretic, I want simply to give my experience of a very careful test, and while I must unquestionably admit that all the facts, theoretically and chemically, are against it, there is no question at all in my mind about the predominance of power to the ordinary sal soda crystal. The power is simply wonderful as compared with the other. The reaction is tremendous, when you make a careful test. Try it once, just taking pound for pound in water.

One little point, the action of the sulphite of soda that I have had experience with this summer; I would like to have others avoid it if they can. I mention the result. I mixed sulphite of soda with pyro, and calculated to keep it about three weeks in warm weather. I have known that to fail inside of ten days, mixing it at the rate of one ounce of the sulphite of soda to half an ounce of pyro. I have found it to fail after ten days in warm weather. The sulphuric acid that Mr. Cramer produced by his chemical reactions will preserve the pyro, no doubt, but I must correct the impression that sulphite of soda is a preserver of pyro. It is not by my experience.

Mr. Landy.—Mr. President, I think it would be very interesting and instructive if some gentleman would give us some information about the development of bromide paper now. Perhaps Mr. Inglis could give us some points about the production of his beautiful pictures.

Mr. Inglis.—Mr. President, Ladies and Gentlemen: Although I made those bromide pictures which are on exhibition, and am manufacturing them now—that is, the paper—I must say that I have had but very little experience in the manufacture of these pictures which have attracted the attention and appreciation of this Association. I might also say that I am as green, in fact, much greener at it, than many here present. However, I have had some little experience, running over four or five months, and in that time I have changed my mind very considerably. While you were speaking about the strength of the carbonate of soda, it was running through my mind how differently

I worked to what you seemed to be trying to get at to-night, regarding the particular strength of the prussiate and the solutions with which you were going to develop your plates. It is not a very scientific way that I go about work, I grant you; I generally take it by the rule of thumb; and if the solutions I find are too strong, indicate that they are going to overhaze the picture or plate, I very quickly change to that which something within me directs me to do. That is the way I work as a rule. But, regarding what I was going to say. In the development of these bromide prints I do very much the same way. I can look back to when I first began to do it, about four or five months ago, and see how I laid down a particular and minute development, whereby to produce best results. I have now found, after these four or five months experience, that I am coming back to my old, original way of working. Almost, undoubtedly, I have laid aside these fine, minute quantities; I work according to what I see the particular piece of paper demands, whether it be stronger or weaker. Now I do not expect that all of you are going to do that, for each one of us has his own individual way of working. We produce our individualities, as a rule, upon the work we turn out.

While I give a formula for one to produce the bromide pictures, I would add that I deviate very wonderfully from it. If I find that a picture on starting gives me the impression that it is going to be flat, I try to hasten the development as quickly as possible, to get strength into it. By doing that I get a greater contrast, and do away with the flatness it would otherwise have. Now this you can only arrive at by experience. While I consider it an exceedingly simple operation to develop the bromide prints, I must say this, or rather before I say it, let me deviate to what I recommend, at any rate to some, and wrote letters regarding, when I commenced making this paper, to the effect that I could give one to ten (a great latitude, you see) in the exposure, and produce a picture which you would not know the one or the ten; that is, if I gave it one minute or one second, I would give it ten seconds or ten minutes—one to ten. Now I have changed considerably from that. While

there is a considerable latitude, I recommend with all my power, just to expose as near as possible to the right thing every time. The best results can only be obtained when the exposure is very exact. I would like to emphasize, I do not claim for the paper I am now manufacturing any greater degree of latitude in the exposure in the hands of the general man. While a good expert may get it under control, I recommend none to play with it in that way, if they want good results.

Now, in winter, when I first began to experiment with the bromide paper, I developed all the time, for about a month or more, with pyro and soda, and I obtained as beautiful tones and results from them as I can possibly get now with the oxalate developer. But since the warm weather commenced I find I can get no results with the pyro and soda worthy of being looked at. The pictures are anything but clear; they are quite yellow and dirty in their appearance. This is not the case with the ferrous-oxalate developer, which I would, therefore, recommend, in summer at least. I am in hopes that before another year passes this bromide paper will be brought to such a degree of perfection that it will not be despised; that instead of it being only a foundation for the artist to finish in crayon or India ink, we shall be able to produce pictures having all the finish of those of crayon or India ink.

Now, while I should like to give as much information as possible, you must accept very little, from the fact that I have been engaged in the business such a very short time. If any questions could be put directly it might aid me, and perhaps bring out a little more than I am able to think of at the moment.

Mr. Cooper.—I would like to ask Mr. Inglis his manner of building up a picture that seems to be coming up flat in bromides.

Mr. Inglis.—I think I stated that if the picture indicates that it will be flat, I strengthen the developer to its utmost power, that is by adding as much iron as the oxalate of potash will hold, short of precipitation. By adding this, it seems to make the deposit much more rapid, and gives a brilliancy which otherwise there would not be. If you use a very weak developer it has a tendency to induce



softness and flatness, while if you use a very strong developer you get strength and vigor. I must say, from experience, I have not found the latitude in the oxalate developer that I have found in the pyro and soda, but all I can do is to use this. I might also add that the addition of bromide of potassium to the developer will help to restrain development, and allow more brilliancy to come into the picture.

The President.—Mr. Cooper will now speak about bromides.

Mr. Cooper.—That is what I am going to try to speak about. I do not know that I can say anything which, to the majority of you will be new. I have been trying, to the best of my ability, to exemplify practically what I have to say to you to-night. And I doubt if I can convey in words any more forcibly than I have done in act what I have been able to show you. The matter of developing bromide paper is, of course, something that is to be taken into consideration only as regards the particular paper to which you refer. One paper requires one treatment, and another another, as is the case with the dry plate. While formulæ of almost any kind that are at all suitable for one plate may, in the hands of a skilful operator, be successful with almost every other plate, it is not to be expected that any formula will act in the very best possible manner on the general run of plates in the hands of anybody. That is simply impossible, and it is foolish to expect it. Bromide papers differ as plates differ. At present, however, fortunately or unfortunately, there are not a sufficient number of samples of bromide paper on the market to make the comparison so broad that we can be entangled in describing what is what for one and the other. I have had a little experience in the use of bromide paper, which I do not think necessary to state here. I have had a little experience in my acquaintance with photographers, and know what they want. I think I do, anyhow. And it has been my privilege to learn from photographers that it is latitude that they desire in their plates, and, consequently, I have inferred that the same quality in anything else that they handled would be acceptable. With that object in view, I have concluded that it would

be best to provide them with something in the way of bromide paper which would be satisfactory all around, just exactly in the ratio that they expect from their plates. I believe, in other words, that to make a man a successful operator in bromide (that is the average man), you must provide him with something which enables him to have certain limits; I would say, almost so much that it is impossible for him to make a mistake. That sounds rather strange, and if I had not succeeded in demonstrating it here, I would not like to make the assertion now. But I think there are at least twenty-five or thirty gentlemen who to-day saw me make one print in 45 seconds, well time, a print off the same negative in one minute, just time, in the same way; that is, you could not tell one from another. Another in two minutes, with the same light and the same developer, and on the same paper, so that you could not tell one from another. And then I went in inverse ratio. You would suppose I would begin by timing 45 seconds first. I did not do anything of the kind; I used new developer, and began on the two minutes exposure. Then I used the same developer, and developed the one minute exposure, then I used the same developer and developed the forty-five second exposure. Thus I worked the wrong way according to theory, but it is a fact. I think there are some gentlemen here who would be willing to confirm my statement.

Mr. Bellsmith.—When you say you used the same developer, do you mean the same portion or the same formula?

Mr. Cooper.—The same as I used on the first print exactly. The same solution was used. And that is where the point comes in. I used the same solution for all, and if any gentleman will call on me to-morrow I will convince him. He may bring me any negative he likes, and I think I will prove that I can make a good print from it. That is, as good as a negative can make on first trial.

Mr. Esterbrook.—Do you use the fresh developer on the shorter time?

Mr. Cooper.—No, sir; on the longest time; just reverse the operation.

Mr. Cramer.—Do you recommend that, or do you only try it for experiment?

Mr. Cooper.—I first of all developed for instruction, and gave the gentlemen a general line of instruction, which I think they understood. I then subsequently showed them what could be done in the hands of some one who was working, and knew what he wanted to do. Every man gets what he wants to do, after he makes up his mind that he knows what he wants, that is all. Now, I wish to say this—the development of one bromide print requires new developer every time. The development of another will be far better if you always use a little of the old with the new. Why? Because one is made according to a certain formula, and another another. You all know perfectly well that in the use of the oxalate developer with the old in the one, was the old trouble that is rare still with the dry plate; that is, the second development was better than the first; in fact, as you went on, the second and third would get more brilliant results, and it was always advisable to use a little more of the old with a little of the new. I am well aware that long development with some paper will give yellow prints, with others it will not. That is all I have to say. If any gentleman wishes to ask any questions, I am ready to answer them.

Mr. Esterbrook.—I would like to know why you reverse the ordinary mode of procedure; give us your reasons. In developing, the accepted method is to commence as short as possible before developing. Now you have reversed this, and we would like to know why you do it, and the theory.

Mr. Cooper.—There are some things we know, and yet cannot describe how it is done, although we know it is done. For instance, a man may turn a somersault because of his predominance of muscle in a certain direction; I could not tell you where, or how to do it. If you practised, you could do it yourself. This is simply one of the gymnastics of bromide work. I do not mean to suggest that every man should work that way. I should suggest that he reverse the operation, that he begin on the longest time with the old developer, and with the new on the shortest.

Mr. Esterbrook.—For the benefit of the photographers here I would ask the question. You have just stated that with some bromide

papers very lengthy development will make it yellow. Is it in the paper, or in the particular development?

Mr. Cooper.—I am a little disposed to believe in the paper.

Mr. Inglis.—Will Mr. Cooper state any paper that he has seen that way?

Mr. Cooper.—I won't do any such thing, and advertise any brand of paper.

Mr. Inglis.—No, I do not mean to advertise any brand of paper. The reason I ask is because I have not seen it. It is new to me. As I have already stated, I am new in the business, and I have not seen any of it, though I have tried different papers; but I have found a particular developer to produce yellowness, while another development of the same paper would stand fifteen minutes without showing the slightest change of color, so far as I could detect.

Mr. Cooper.—The question resolves itself into this—yellowness in what; in the whites?

Mr. Inglis.—In the whites.

Mr. Cooper.—Well, that is exactly what I am referring to, and there are occasions when it is particularly apparent, in others it is not. In the majority of cases the yellowness results from very long development, and that is generally where a print is so much under-exposed that it requires forcing, and the operator naturally goes as far as his iron (that is, one to six or one to four) allows him, and then after that, a little more iron, and goes on until he reaches a limit where the iron is precipitated in the granular form, which falls on the paper in that form, and looks as if it were, and in fact indicates itself very plainly. You see there is a point where precipitation begins to take place without your being able to see it. If you use your graduate, you will see after awhile that it has been coated around with a very fine and slightly opaque deposit—the granular iron, oxalate of iron,—which falls when you over-dose, by making a combination of solutions of more than one to three. That is, I think, the explanation. Where it has been forced in long development, and gained a point where the man has put in more iron than the developer can reasonably carry.

Mr. Esterbrook.—A good deal like the oyster question, Mr. Cooper, isn't it? I

know you can open a lot in four to four, and now you see it, and now you don't.

Mr. Temple.—I want to know if any of the workers in bromide paper have tried the pyro developer in place of the oxygen plate developer, and with what result.

Mr. Cooper.—I think I stated that very distinctly.

Mr. Temple.—I was not in the room at the time.

Mr. Cooper.—When I began making the bromide paper last year, I used that, and produced as beautiful tones as I have done with the ferrous oxalate, but since the warm weather commenced I have failed with the pyro.

Mr. Temple.—The reason I asked the question is this. I had occasion to make some opals the other day, and I had not made any of them since the old process. At the request of the stockdealer in my city I tried opal plates, and made up the developer according to the formula published, and I secured a very good opal. I simply tried the ordinary pyro developer, as I used in ordinary work, and it developed without any trouble at all. Supposing that the opal in the paper, and the opal in the dry-plate amounts to about the same thing, I suppose that the pyro developer should work as well on the bromide paper as the oxalate does, and I should like to know if any one has tried.

Mr. Gentile then read a paper on "Prices."

Mr. Landy moved that a vote of thanks be tendered Mr. Gentile for his valuable paper, with loud applause into the bargain. [Loud applause.]

Mr. Poole.—I would like to say something about prices. The matter of low prices seems to affect not only photographers in the United States, but in Canada also, and much from the same cause. However, our Association came to the conclusion that, although small, that talking was very well, but to act was a great deal better. I am sorry I have not something here to show you what we did, but will exhibit three cards to-morrow which we had printed, and secured good results. As Secretary of our Association, I was instructed to have a maroon card printed in bronze, urging the public, in nice wording, to this effect: That the craze

for low prices led to the purchase of poor, cheap materials, and also led to the employment of poor assistants, and also two or three other causes, and that the public did not get what they expected. Our object was this, to let the public know that their craze was bringing the bad result on themselves, that they were not getting as good work as they supposed. Now if you can get the public to see it in that light, you have accomplished your end. I suggest our plan to you. We took the trouble of sending one of these cards to every photographer in Canada. Most of them had them mounted, and hung conspicuously in their studios. When a customer comes in he is naturally attracted, and reads it, and begins to say, "What is the meaning of this?" Reaction is coming. (Applause.)

The President —Our worthy ex-president, Mr. Joshua Smith, will now read a paper giving the result of his trip to Europe.

Dr. Elliott moved a vote of thanks be given Mr. Smith for his paper, which was seconded and carried.

Mr. Clark moved adjournment, which was carried, and the Convention adjourned until 9.30 Friday morning.

#### FOURTH DAY.

Papers were presented from Messrs. Von Sothen and F. C. Beach, which we print in our current issue with other papers which were only announced because there was not time to read and discuss them.

Mr. A. K. P. Trask, of Philadelphia, moved that a prize be offered for improvements in printing on albumen paper, or for a substitute therefor.

The election of officers was now continued with the following result:

C. W. Motes, 1st Vice-President.

F. W. Guerin, 2d Vice-President.

W. H. Potter, Secretary.

G. M. Carlisle, Treasurer.

The President now exhibited the Charter of the P. A. of A.

Sec. Bellsmith then addressed the Association on the subject of the *Blair* cup as follows:

Mr. President, you have asked me for an explanation concerning the Blair cup. I would say, that Mr. Blair presented the matter to the Executive Committee, and

asked them to take it in hand, and decide the manner in which it should be disposed. The Executive Committee determined that it should be necessary for a competitor to win it twice in succession, and that the competition should be conducted thus: the committee shall name a subject this year that shall be used for illustration in the production of a picture to be brought here next year, and entered for competition for the cup, and the best illustrator of that subject should be awarded the cup, and be its custodian until the next Convention. If, at the end of three years, it has not been won twice, it shall revert to the Association, and become its property, to be disposed of, as may be desirable. After that decision was arrived at, there was some question as to how it should be placed in competition this year, as no subject had been previously announced. The committee finally decided to allow the present Awarding Committee to present the cup to the competing exhibitor having the finest single photograph, without distinction as to style or class. The winner shall hold the cup until next year, and the subject for next year's competition is announced to-day.

The President.—The secretary will please read the regulations regarding prizes, on file.

The secretary read the rules, also those regarding the disposal of the Blair cup.

The President.—I would ask the secretary to add a supplementary resolution, that, for the first year it will be awarded to the best picture exhibited, so as to settle all doubts about it for other years.

Is the Committee on the Manufacturers' prize ready to report?

Mr. Landy.—The whole number of votes cast is 247. Cooper's Enlarging Camera received 133 (a majority vote), and gets the silver medal.

Mr. Potter suggested that prize winners give receipts for their prizes, so that there would be no doubt about their receiving them.

Some discussion followed upon the payment of the expenses of the committee appointed to confer with the Underwriter's Assoc., after which Dr. John Nicol, editor of the *Beacon* and Chairman of the Jury of

Awards read their report, which appears on another page.

Dr. Nichol said: I am instructed by the judges to say that the exhibit of Mr. Ryder would have entitled him to a gold medal, but he is ruled out in consequence of having been awarded a gold medal last year. He will, therefore, receive a silver badge.

Mr. Jackson was also debarred from a gold medal this year, because he received one last year. It is, therefore, awarded to the next competitor in excellence to Mr. Jackson, Mr. Burnham, of Chicago.

One word, in order to prevent our friends from coming to us, and inquiring about the decision, and how we arrived at it. There are two things I wish to tell you—1st. That the committee had not one single difference of opinion, from beginning to end. We varied a little sometimes, but generally we kept most harmoniously together. 2d. We have made a solemn oath, and mean to keep it, under no circumstances can anything more be told than what I have already stated; all the papers are burned, the figures have gone with them; and we ourselves have forgotten all about it.

A discussion followed which was so entirely out of place and undignified, to say the least, that we make no report of it. A vote of thanks was given to the Jury of Awards, their report was accepted and adopted and they were discharged.

\$1000 was appropriated for prizes for the coming year—a bad mistake.

Sec. Bellsmith.—I rise to perform a decidedly pleasant and agreeable duty. After the battle is over, and the smoke has cleared away, good feeling will return. Let us go away with a mutual feeling of peace and good will. I probably have been as active in discussion as anyone, and have no reason to regret my action, but I can assure the gentlemen who have opposed me, that I have nothing but the kindest feeling toward them.

I take great pleasure in handing to Mr. J. Landy, of Cincinnati, the trophy which has been presented to this Association by Mr. T. H. Blair, of Boston, a trophy that has been won upon the merits of a single picture, containing in itself a conception of beauty and grandeur that I think has

hardly ever been equalled or excelled in the world, as a photographic production. I think, Mr. Landy, you may well be proud of this beautiful cup, and trust that you may be enabled to retain it.

Mr. Landy.—I thank you, Mr. Secretary, and appreciate the liberality of Mr. Blair. When I came here, I did not expect to win the trophy, but since I have done so, I will try to do something that will enable me to win it again, although every member has the same chance. I trust it will be the means of stimulating competition for this handsome prize, which I hold for one year.

Mr. Landy.—Before we adjourn, I move that a vote of thanks be tendered to our very efficient President Cramer, with three cheers.

Mr. Poole.—In seconding that motion, I want to say this, of all men whom we have found here acting as presiding officer, President Cramer alone knows when he makes a mistake, but when he does make that mistake, some of the happiest results take place. I have great pleasure in seconding that motion.

The President.—Before you put the question, I want to say a word. I simply accepted office on your urgent request, and with great reluctance. I felt it my duty to serve the Photographers' Association of America to which I owe all my progress. I accepted the office, knowing it would be extremely difficult for me to perform the duties connected with it; but I have earnestly tried to do what is right, and make this Convention a success. Now, I am very sorry that any one should go away from here dissatisfied. But some disputes have arisen in spite of all my precautions. If, however, you blame me, for any apparent weakness manifested, you do me great injustice. I know I have made many mistakes in the matter of parliamentary government; I was perfectly well aware I would make them, and have never claimed to be efficient in that respect. But, gentlemen, I have profited by these proceedings. I have, for instance, learned a word from our esteemed Canadian brother that I have never heard before, and shall never forget—"scrutineers." (Laughter and applause.) Thus I feel that all this trouble and labor

has not been undergone for nothing; I have improved, gained experience, and am your obedient servant, J. Cramer, forever. (Loud applause.)

Mr. Landy.—It is moved and seconded that a vote of thanks be tendered to our very effective and sincere President.

Carried.

Three hearty cheers were then given for the worthy President.

Mr. Bell-smith moved that the medals be distributed at the afternoon session.

Seconded and carried.

The Convention then adjourned until 4 P.M.

The Convention assembled at 4 P.M., and was called to order, but owing to the very small attendance of members, it was considered inadvisable to continue the session. The President therefore announced the Convention adjourned *sine die*, and the meeting of 1887 came to an end.

### THE PRIZE AWARDS.

In our issue of August 6th, page 453, we published a complete list of the Association and private offers of prizes. We now repeat the list, with a few additions made afterwards, and add the names of the parties to whom the prizes were given.

The catalogue is as follows:

#### A. THE ASSOCIATION OFFERS.

##### TO FOREIGNERS.

A gold medal to Oscar Suck, Carlsruhe, Germany.

A silver medal to D. Anderson, Rome, Italy.

##### TO AMERICANS.

*Class A.*—For collection of Portrait Photography of any size. (Cabinet Pictures not competing in Class C, may be included in exhibits competing in this class.)

1. Grand Prize, Diamond Badge, for best exhibit, F. W. Guerin.
4. Gold medals for superiority, H. McMichael, G. M. Elton, J. M. Appleton, W. H. Potter.
4. Silver medals for excellence, S. L. Stein, J. C. Strauss, O. P. Scott, S. V. Courtney.

*Class B.*—For collection of large Photographs; contact prints not less than 22 inches long; print not to be vignettted.

1. Gold medal for superiority, S. V. Courtney.

1. Silver Medal for excellence, P. H. Rose.

*Class C.*—For collection of 24 Cabinets.

10 Bronze Medals for merit, Geo.

W. Wise, J. J. Gibson, G. C.

Umlin, G. L. Temple, B. La

March, L. E. Miller, Stuber

Bros., H. M. Waide, E. Poole

C. Palethorpe.

Parties competing for this Class did not compete in any other Class.

*Class E.*—Landscapes.

Extra award, one Diamond Badge to Geo. Barker, Niagara Falls.

1 Gold Medal for superiority, S. W. Burnham.

1 Silver Medal for excellence, P. B. Green.

*Class F.*—Best Marine Views.

1 Silver Medal, J. S. Johnson.

*Class G.*—Best Interiors.

1 Silver Medal, H. G. Peabody.

*Class H.*—Best Instantaneous Views.

1 Silver Medal, H. G. Peabody.

*Class I.*—Best Architectural Photography.

1 Silver Medal, C. D. Arnold.



The T. H. Blair Solid Silver Cup.

*Class D.*—Composition or Genre.

1 Gold Medal for Superiority, G. B. Wood.

1 Silver Medal for excellence, H. Randall.

*Class J.*—Best Photo Transparencies.

1 Silver Medal. No competition.

*Class K.*—Photography applied to Science.

1 Silver Medal, Henry L. Tollman.

## B. PRIVATE OFFERS.

1. A solid silver cup costing \$250, from the Tiffany establishment, New York, offered by T. H. Blair, Esq., Boston, James Landy.

2. *Anthony's Bromide Paper Prize.*

A cash prize of \$100 for the best collection of untouched enlargements, consisting of no less than three pictures, made upon Anthony's Reliable Bromide Paper. Each picture is to have a private mark of the photographer, and a duplicate mark for the use of the judges who are to award the prize. The name of the photographer to be given the donors so they can advise the judges after the award is made to whom it belongs. Donors: E. & H. T. Anthony & Co., 591 Broadway, New York, to A. A. Knox, Pres. of the Brooklyn Photo Enlarging and Contact Printing Co.

3. *The Beck Lens Prize.*

*First.*—For the best examples of portraiture, from cabinets to life-sized heads, made with Beck's "Autograph" lenses (of any size not smaller than No. 6), one No. 7 "Autograph" lens, the cash value of which is \$100, J. F. Ryder.

*Second.*—For the best work, other than portraiture, such as architecture, landscapes, interiors, etc., one No. 5 "Autograph" lens of the cash value of \$60, M. P. Warner.

These lenses were made by the Messrs. Beck especially for the occasion. They were appropriately engraved, and were exhibited during the Convention, by the donors, W. H. Walmsley & Co., Photographic Stock Merchants, Philadelphia, Sole Agents for Beck's Lenses.

4. *Grand Prize offer for pictures on Eastman's Permanent Bromide Paper.*

First, for Plain Enlargements.

Class A.—\$150 for the best collection of unfinished enlargements, J. F. Ryder.

\$75 for the second best collection of unfinished enlargements, Kuhn Bros.

Class B.—\$50 for the best unfinished portrait enlargement, J. F. Ryder.

\$25 for the second best unfinished portrait enlargement, Hulburt Bros.

Class C.—\$25 for the best unfinished en-

largement from landscape or marine view negative, W. S. Bell.

Contact Prints.

Class D.—\$50 for the best collection of contact prints, W. H. Walmsley.

Second, for Finished Enlargements.

*Class E.*—\$100 for the best enlarged portrait finished in black and white, J. Weber.

\$50 for the second best enlarged portrait finished in black and white, J. F. Ryder.

\$25 for the third best enlarged portrait finished in black and white, J. C. Strauss.

*Class F.*—\$100 for the best enlarged portrait finished in color, J. C. Strauss.

5. *Prize Offers for Photographs made with the Morrison Lens.*

For the best photograph exhibited at the Chicago Convention, made with a Morrison Lens:

The choice of a Morrison Leukoscope Lens, cash valuation, from \$80 to \$180, C. D. Arnold.

The lenses were engraved with the winner's name. Scovill Manufacturing Company, 432 Broome St., N. Y., W. Irving Adams, Agent.

6. *The Air Brush Prizes.*

First. An Air Brush for the best portrait in black and white finished by the Air Brush, W. H. Sherman.

Second. An Air Brush for the best portrait in water colors finished by the Air Brush, Madame A. Subit.

Donors: Air Brush Manufacturing Co., Rockford, Ill.

In addition, each Air Brush awarded was accompanied by one of the handsome black walnut easels made by the donors.

7. *The Stanley Dry Plate Company's Prize.*

\$100 for the best collection of photographs made on the Stanley plate and displayed at the Convention, H. McMichael.

Donors: Stanley Plate Co., by E. & H. T. Anthony & Co., Agents.

There was no award made of the McIntosh Sciopicon prize, for want of proper competition.

The Association Judges were Dr. John Nicol, Dr. A. H. Elliott, Mr. James Inglis, Mr. R. Goebel and Mr. E. Long.

It is hardly worth mentioning that some dissatisfaction followed the report of the excellent Judges. It is always so. But the gentlemen who had the patience to fulfil such a thankless task, were the unanimous choice of the Association and any word of complaint would be unjust, unkind, and discourteous.

In some cases the competition was so very meagre as to render the duties of the jury easy enough, while in others it was most perplexing to decide, although some individual exhibitors seemed to think it was very easy.

### THE BIENNIAL IDEA.

A large number of wise photographers who usually "count the cost" and consider whether the money they spend is wisely expended or not, whether they will likely get *quid pro quo* for their investments or not, are of the opinion expressed by us in an editorial published soon after the St. Louis Convention, namely: that our conventions do not do enough good for the amount of money and time they cost. With this thought in view it was believed that more good would be accomplished and the growth of our art more widely spread and surely promoted if the conventions were held less frequently, say every other year or once in three years. So popular did this opinion become that the manufacturers and dealers personally present, at Chicago, made an overture to the convention, as follows:

The undersigned, manufacturers, importers, and dealers in photographic materials, believing that the interests of all would be best promoted by the holding of an exhibition once in two years, do most respectfully solicit from your honorable body such legislation as will accomplish this desirable end. (Signed), Scovill Mfg. Co., per W. Irving Adams, agent; A. M. Collins' Manufacturing Company, E. & H. T. Anthony & Co., by G. A. Ayre; Benjamin French & Co.; The Blair Camera Co.; The Eastman Dry Plate and Film Co., by Geo. Eastman, Treasurer; Geo. Murphy; Knapp & Caldwell; The Robert Dempster Co.; J. C. Somerville; Sweet, Wallach & Co.; Eagle Dry Plate Co.; Gayton A. Douglas & Co.;

Hiram J. Thompson, per R. J. Golsen; Lafayette W. Seavey; Allen Bros., Detroit; L. M. Prince & Bros., Cincinnati, O.; J. P. Cheney, Philadelphia, Pa.; Harris Photographic Supply Co., Detroit; Wilson, Hood & Co., per Kennington; G. Cramer Dry Plate Works; Bonte Frame Co., Phila.; John Young, Chemist, Chicago; John Carbutt, Philadelphia; M. A. Seed Dry Plate Co., St. Louis; G. R. Angell, Detroit, Mich.; Sheen & Simpkinson; Ph. Bonte, Chicago; Samuel & Co.; Thos. H. McCollin & Co.; W. H. Walmsley & Co.; H. A. Hyatt, St. Louis; C. H. Codman & Co.; P. Smith & Co.; David Tucker & Co.

With the above is offered the following resolution:

*Resolved:* It is the sense of this Convention that for the future, biennial meetings of the Photographers' Association of America will promote the best interests of the Association.

*Resolved:* That the Executive Committee be authorized to make the necessary arrangements for carrying into effect the foregoing resolution.

The document was referred to the Committee on the Revision of the Constitution.

When the report of the Committee was being read next day, the subject came up for consideration in turn. The following is the report of the stenographer:

Mr. President: I move that the Constitution and By-Laws be adopted as amended, as a whole.

Mr. Staples: I second the motion.

Mr. Clark, of Indianapolis: I make an amendment. There was a petition sent in yesterday asking this Association to meet once in two years.

The President: Yes; it has been recommended, and we ought to consider it. There has been a motion made and seconded, to alter our Constitution to read so that we will hold our meetings biennially instead of annually. What shall we do with the motion?

Mr. Down, of Worcester, Mass.: There has been a motion made and carried that the salaries of the Secretary and Treasurer be increased 10 per cent., and I want to ask if this is carried biennially, whether we are to pay an increase for less work?



The President: That might afterwards be arranged by a reduction of the dues.

Mr. Edgeworth: I would say, before the President puts a motion, as a mover of the amendment, that we have our meetings regularly, and if the stockdealers want us to hold them every two years or every three years, in order to save them the expense of coming to our conventions to exhibit their goods, it is well enough for them to do so. But I do not know that the Photographers' Association has solicited their assistance. They want to show their goods, and they exhibit them. All other bodies have one general meeting once a year, and we should do likewise. If we meet once in two years, in time it will be extended to four years, and indefinitely, and our Association will die a natural death. The photographers come together rarely enough—in a small place they wont come; but when they get off a distance, and come together, they get each others' ideas—better ideas—and if they met oftener, it would be better for them. (Applause). I believe in having an annual session at least. This Association is becoming so that it is recognized by the world as a respectable body, and it is progressing, and there is no reason why we should stop simply because a few stockmen object to the cost of attending our conventions. I am, therefore, in favor of voting down the motion, and maintaining our custom of meeting once a year. (Applause).

The President then put the motion, which was lost.

In order to get the matter acted upon constitutionally, a motion was made to refer the matter to the Committee having in charge the revision of the Constitution, with instructions to report it with other amendments, when it could be properly discussed.

A short debate followed this motion, after which the communication was referred to the Committee without recommendation.

There was but a handful present at the time, who seemed indisposed to consider the matter at all.

Thus an important measure offered by a useful part of the Association membership, almost equal in number to those who without proper consideration applauded the

defeat, was ignored thoughtlessly and unwisely.

The practical result will be, no exhibition by the dealers and manufacturers next year, and one of the most interesting and attractive features of the Convention will be gone, besides a large source of revenue will be missed.

What effect this will have otherwise we leave the ones most interested to consider.

A good deal of debate has often been indulged in concerning the presence and influence of the dealer and manufacturer in the Association, and now we see a man whose voice we do not recollect hearing before rise and confess his ignorance by saying, "I do not know that the Photographers' Association has solicited their assistance," and so on, thus carrying the votes with him of a very few who were equally ignorant as to facts. For one we recognize the dealers and manufacturers as a very important element in our splendid Association and regret that they were not given more polite consideration. Even the President was one of the signers of the overture, but took his rebuff with good grace.

We do not croak as a rule, but we believe that discretion is the better part of valor in such cases.

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## THE PHOTOGRAPHERS' PROTECTIVE ASSOCIATION OF AMERICA.\*

BY WM. H. H. CLARK.

At the earnest solicitation of our worthy President, Mr. Cramer, I have consented to occupy a few minutes of your time, and have chosen as my subject one which is nearest my heart and should be with every member of this organization—nay, with every photographer in America. The theme I have chosen is the Photographers' Protective Association of America. Mutual protection is a bond of love. In other words it is the fulfilment of the golden rule: "Do unto others as you would have them do unto you."

The question, and a pertinent one, has no doubt arisen in the mind of every photog-

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\* Prepared for the Chicago Convention.

rapher: What will become of my beloved ones when I am gone, and the more so since the great increase in the ranks of photographers and the consequent lowering of prices for work performed? I might ask, yea, I have been asked by a very large number, what real object have we in perpetuating this Association? The reply would naturally and truthfully be, for the advancement of the photographic art. But, my friends, what becomes of those dependent ones in the meantime? While we are advancing the interests of photography can we not as well provide for the comfort and care of the loved ones of a brother in case of his death? Self-preservation is one of the laws of nature. You need this protecting influence. I need it. If we expect others to contribute to the relief of our loved ones when we are gone, we must likewise contribute to theirs.

What a cheerless thought for those dependent upon us that some day, no one knows how soon, they may be left alone and unprotected, and compelled to beg for crumbs that fall from the rich man's table. Every family needs protection, for all business enterprises are attended with uncertainty; hence, every one having dependent relatives should insure, whether his business is on a large or small scale.

The question then for us to consider is this: Can we not offer the required protection at the minimum of cost? There will be no large and elegant office to support, no large salaries or commissions to pay. Our association must, and will be maintained, and properly and skilfully managed, and with a comparatively small extra outlay, we can afford this insurance. The past year has demonstrated the fact that a separate office for Secretary is superfluous, and hence a useless expense upon the Association.

The two offices, Secretary and Treasurer, could and should be combined in one, and the incumbent should alone have charge of procuring railroad rates, mailing certificates to members, collecting dues and assessments, paying benefits, etc., and should have a salary adequate to the duty performed and responsibility of the position, and should be placed under sufficient bonds for the faith-

ful discharge of his duties. Then, with a local Secretary, our salaried officers would be all told. A Corresponding Secretary is no more needed than the fifth wheel to a coach. Take the amount paid that officer for salary and expenses in attending the meetings, together with what the Treasurer receives, with a moderate sum added, you could secure one man's whole time, and our association would be much more prosperous.

As to plans of assessment, there are many in operation which could be secured, compared, and selection made. Three good ones I might mention are the Odd Fellows' Mutual Benefit of Providence, R. I.; also a different plan by the Odd Fellows of Galesburg, Ill., and Farmers' and Mechanics' Mutual Aid Association of St. Louis. If we had but 600 members to start with, and could pay to the heirs of a deceased but \$600, how vastly superior that would be to nothing; but with this benefit feature adopted, our association would rapidly increase in numbers; every member would feel a greater desire to extend his influence and add new members, a selfish motive, perhaps, but a laudable one. There is no more propitious season than now to organize this protective branch of our association, and no class of men on the earth more needing beneficent protection than photographers, and the finances of our association were never more favorable.

All new members should be admitted only on a physician's certificate, but all present members in good standing should be allowed to partake of the benefits without any reserve whatever, for they have made the association what it is, and deserve full benefits. We should take our chances upon them. The American Travellers' Protective Association, which lately met in St. Louis, represents nearly every State in the Union, and numbers nearly 20,000.

The editor of the Spanish American newspaper published in that city says: "There is no organization that excels that of the American Travellers' Protective Association in point of utility, enterprise, sound business principles, general intelligence, gentlemanly deportment, and a genuine spirit of Americanism." Take away

the protective feature, and think you that organization would remain in a condition to be so highly lauded?

With a protective feature added to our association we will, in a few years, number thousands instead of as now but a few hundreds, and it will do more toward regulating that all absorbing question of prices than all other forces combined by uniting us more closely in the bonds of brotherly love.

I need not even suggest ways and means of procedure. Make the fact known by a popular vote that you desire the adoption of a protective feature, and there will be those found able and willing to devise rules and regulations to meet the exigencies of the case.

It has been suggested to me that, should the outline here given for a protective feature go too deeply, the next best thing would be simply to assess twenty-five cents upon the death of a member, and send \$100 to the family for burial purposes. That would be very good to send a check at once upon a notice properly attested of a death. There are many cases where even \$100 would come in aprofos.

This last plan has this to recommend it, that it would require no special legislation, or special books, or specifications, or anything differing from what we now have, excepting the vote to make it a feature, and incorporate the same into our bylaws. I incline toward the first plan of resolving ourselves into a full-fledged protective association; but, should the members see proper to try the latter first, it could be used as a stepping-stone to something higher and more elaborate, should it become desirable and popular.

Now, my friends, with a little promptness and foresight a great deal of suffering can be alleviated, and at seemingly no cost or inconvenience to us as a body or individuals. I have been repeatedly told by a large number who are not now members, that if this feature was adopted, they would at once join the association. There is no doubt in the world but that it would largely increase our membership. How much better a man feels and can work when he knows should he be called hence that his

loved ones would not be left entirely destitute. There is no escaping death, and no matter how well fixed some of us may be, we all need this protection, for there is no telling how soon "riches may take to themselves wings and fly away," and, too, at a time in life when we may be totally unable to provide for those remaining behind.

Now, in conclusion, let me urge upon you, my brothers, not to leave this hall until you have caused by your vote some measures to be taken whereby a protective feature of some kind may be adopted. "Procrastination is the thief of time;" yea, and it will steal the protection from your loved ones. A committee should be at once appointed to put this matter in proper shape and to be reported upon before the final adjournment of this Convention. Talk is well enough, but action, prompt action, is needed. Shall we have it?

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## OBSERVATIONS AND COMPARISONS.\*

BY JOSHUA SMITH.

LADIES AND GENTLEMEN of the P. A. of A.: While it is not my motive to give a lengthy paper on this subject, I shall only refer to Germany, France, and England, as compared to home photography, trusting that it will be of value to you, especially to our younger members who are deeply interested in this profession. It has been often said, that European cities with their well stocked art galleries and museums, which contain the choicest art treasures, that have been concentrated during centuries, create large influence in the art training of the student photographer. This advantage you have often referred to in former conventions of the P. A. of A.; that our foreign photographers enjoy. During my tour in Europe, I visited their celebrated art galleries by the score. I walked along walls covered with canvas for miles, representing all the old masters' paintings large and small, the majority representing sorrow and subjugation. How shall we employ these studies in photography in this advanced nineteenth century,

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\* Prepared for the Chicago Convention.

when it is our endeavor to represent in our work life and joy?

But does the photographer take advantage of such object lessons his government has so bountifully placed at his disposal? Upon inquiry I was told, and my observations agree, that art galleries and museums are the abode of tourists; then what vantage have they in the race for progress over us? Compare their miles of canvas and marble to the miles of photographs you have been enabled to study through this association, and the thousands of object lessons here placed before you.

For a number of years several German photographers favored our association with their best work which received our universal admiration, but how about the average of work in Germany compared to America? Large cities like Berlin, Dresden, and Frankfort, contain several very fine studios where good work is done. The same is true of New York, Boston, and this city, Chicago. If we compare their elegance and conveniences, sizes of cameras, etc., and the amount of large work done they must take a back seat.

The studios in Berlin, while several are "Unter die Linden," and main business centre, they are situated in the rear of the main line of buildings, the entrance is through a passage into an open court, where the studio is generally on top of a three or four story building accessible by narrow stairs, while others, more favored, have built their studios in a garden, but the latter are often in the outskirts of the city and hard to find; skylights in Berlin are very large and some have a length of forty to fifty feet. But while the studios are so unfavorably situated, the photographer displays his work along the public squares and other places accessible to him, some have erected elegant pavilions for their display, and these contain booths for the sale of opera tickets and for making appointments for sittings. Such a novelty might be introduced here. The number of galleries in Berlin, Dresden, and Frankfort are not so many as in New York alone. Photographers of small means and poor workmen, seldom locate in large cities, but remain in small towns, or tramp through the country.

Prices obtained here for cabinets range from ten to thirty marks, and orders from quarter to half dozen are the rule, but the cabinet has not obtained public favor, for the *carte de visite* still holds the fort, prints above ten or thirteen are the exception, and the majority of photographers have not even the instruments to fill an order. There is another individual I must not overlook, for I know you are all anxious to hear from him. The cheap John, has his abode there too, but unlike our American cheap Johns, he is not so numerous, nor so well up in all photographic branches yet, for he is a very poor copy of his American relation. I noticed a fellow who had his place on one of the principal streets in Berlin, and over his shop, a very small one indeed, he displayed the now famous white rag of distress, "Amerikanische schnell photographie, a ein mark!" Now you will be astonished when I tell you, that this American quick photography was our old and long forgotten ambrotype on glass and backed with asphaltum. If he had used ferrotype plates it would have been proper to term them American.

As I have stated that a poor workman seldom finds a foothold in large cities, the average work is perhaps more uniform than with us, but, again, the smaller towns are greatly inferior to our own. Small work, or, in fact, all photographs, receive more retouching on the finished print than with us. This is perhaps owing to the small wages paid for skilled labor, but the prints and work in general lack force, and while technically they are full of detail, yet they show a weakness and often flatness to a remarkable extent.

I noticed this so much that it appeared to me peculiarly German. I felt somewhat disappointed, as I expected to find photography *par excellence* in Germany, to notice several old and well known firms of collodion fame have not photographed to much profit, for their young competitors are moving into the front ranks. Photo-mechanical processes have here produced better results than perhaps in any other country, due to the technical skill of the German artisan.

Paris, the beautiful city of boulevards and attractive shops, the custodian of art

treasures founded by Napoleon, has some studios where good work predominates. She has also a number where work of less merit is the order of the day, in fact, the grades are well mixed, and you can be accommodated from one franc to one hundred francs. The work or photographs produced here are entirely different to the German productions; several studios are sumptuously furnished; their skylights, reception rooms, and manner of conducting their business is similar to our own; their enterprise is also greater than their German neighbors.

I was greatly pleased with the work of one firm, their prints were simply perfect in modelling, and rich chemical effect, the tone of the prints was a rich grayish purple, and entirely different from anything I have seen abroad in photography. Their "*modus operandi*" I was kindly told, consists in using a small light, large and long-focus lenses, well stopped down to about one-third of full aperture, exposure from ten to twenty seconds, and developed in weak liq. ammonia, bromide of ammonia, and pyro. The negatives made in this establishment are simply perfection.

Most of their work is enamelled and 100 francs per dozen for cabinets. The running expenses, I was told, amounted to 200,000 francs annually. I mention this also as worthy of imitation.

The developer mostly in use is iron. Cabinets and panels are in great favor among the Parisians. Paris offers nothing new in styles and sizes. Electric light is now used in several establishments, and I was told that a large trade was done late in the evenings in ball costumes. During dark days in winter the electric light is started, generally between two and three in the afternoon, and very good negatives procured thereby. I have a few prints and shall be pleased to show them to any one who desires to see them; they are soft with good modelling. We will now proceed to England, and in London make our observations, providing it is clear enough to see. Here the photographer during half the year is enveloped in fog, not chemical fog, but real solid London fog. The color varies from a light gray to a light orange, and at times is non-actinic enough for a good dark-room.

London photographers must have hailed the new candidate "gelatine plate" as their deliverer, still, I was told that with rapid plates long exposures are still the rule. Excellent modelling I observed in the prints of the best studios, while at others hardness and underexposure. As their work, so their prices. I observed a greater difference than in the other cities mentioned. The *carte de visite* is still on top, and at some of the street doors you are requested to step up and have a sitting for a shilling, six pence for six, while at others you pay your guinea. Very little large work above 10 x 12 inches is done here. The large firms in London have numerous branches in the suburbs and watering places, as well as in larger cities.

Liq. ammonia and pyro is here the favorite developer, although iron and the other alkali carbonates are in use. Photographic exhibitions, notably the British Association are held annually, but they are no comparison with the P. A. of A., still they have some good points. I noticed the title of each subject printed on the mount, and a catalogue gives number, title, and by whom. The exhibits of the members seldom reaches over half a dozen. This might be tried by the P. A. of A. and would make the exhibition here interesting, especially if the title adopted by the exhibitor be of the ideal kind, and not for the portrait of a man, "A man." There is certainly room for improvement in the way just mentioned. As isochromatic plates are now used in England, with a high grade of sensitiveness, I hope for the benefit of the fraternity there, that before long he will shut out the fog, turn on his gas, continue his sittings, and with instantaneous shutters make his exposures and be happy. I noticed abroad that they excelled in their smaller work but as the size increases they fall way behind. When I told them of what was being done over here, the magnitude of our work and the P. A. of A., the answer came, "Oh! that is another American story."

I congratulate you, for you have made far greater progress in photography than the fraternity abroad, and it has been accomplished through the influence and the thousands of real object lessons that have been

placed within your reach by this association. Your work to-day shows that you have studied, practised, and improved. Our members who will takè with them their well earned prizes, stand to-day first and foremost on the list. You have here the finest exhibition of photographs. It excels all former attempts. Our manufacturers and dealers have in this vast building the greatest show on earth. Our apparatus is superior, our plates more sensitive and uniform, and you are wide awake enough to purchase and introduce a good thing, when you see it, and progress with its use.

### ON THE TREATMENT OF VERY SENSITIVE PLATES.\*

BY G. GRAMER.

DRY PLATES were originally made to take the place of wet plates, with hardly a thought of making them more rapid than collodion, and the keeping quality was at that time the main desideratum.

That the dry plate contained within itself the possibilities of great speed, was evolved at a later day, and as the working of dry plates became more familiar to the craft, a demand for more speed or sensitiveness was made, and as promptly met by emulsion makers, and plates are made of sufficient sensitiveness to reproduce objects moving at a high rate of speed, and wonderful achievements in this direction are to be seen every day.

That plates of a high degree of sensitiveness require very careful treatment, is at once apparent, when we consider how readily they respond to the faintest touch of light, be it light entering through the lens or through a pinhole in the bellows of the camera (which may be invisible from the outside), the minutest ray of light entering through door or slide, or between tablet and back of camera—prolific source of trouble—all of these will be promptly registered upon the plate, causing fog, for which the plate will often be blamed and condemned as worthless.

Although very sensitive plates are as easy to manipulate as plates of lower sensitiveness, they require more care and attention

to have the proper safeguards thrown around them, safeguards which really should be used for all dry plates.

It is not fair to subject plates of different degrees of sensitiveness to the same conditions and treatment to determine upon their merits. For reasons already stated, a slower plate may remain perfectly clear, when a more sensitive plate will show signs of fog in the same proportion as when an old style wet plate would be compared with a modern dry plate. It is a pity that so often the finest plates are spoiled by improper treatment.

If photographers would be all as careful in their manipulations as the maker of the plate has to be, there would be little complaint, and it would not happen that one will say, number so and so is "no good." Another will write mentioning some number, "Send me every plate you have of it." Another one writes, "I want a very rapid plate, but one that is not so sensitive." This is an absurdity, as rapidity and sensitiveness are one and the same and cannot be separated.

To work very sensitive plates successfully, everything should be in the best working order. The dark-room, aside from being roomy, well ventilated, and having all the necessary conveniences, should be perfectly tight, and the color of it inside, non-actinic. Colored paper used for the lantern or window will fade, and should be removed from time to time.

Examine dark-room, camera tablets, and lens at intervals, and see that your dishes are always clean and everything convenient. Have your chemicals fresh and pure and well stoppered. Bear in mind the difference between chemicals of the same kind but in different form. For instance, sulphite of soda granular, is about twice as strong as sulphite of soda crystals. Carbonate of potassium is about equal in strength to dried carbonate of soda; both are about twice as strong as the carbonate of soda crystals, or sal soda as it is commonly called.

Guard against any trace of diffused light, too much exposure to the colored light while developing, or having the colored light too strong.

Use fresh developer for short exposures,

\* Read at the Chicago Convention.

and old developer for overtimed plates, remembering that old developer will produce more contrast and clearness; an addition of a little old developer or a little bromide of sodium will often prove beneficial. Mix old and new developer in proper proportions to suit the exposure. If very much overtimed, restrain by adding solution of bromide of potassium, and if undertimed, dilute the developer and do not try to force the development by adding an extra dose of alkaline solution, as this will only injure the plate.

Observe that a developer, strong in pyro, produces strong negatives, and that the temperature of the developer and the quantity of alkali it contains is of great importance. If the developer is warm, or contains too much alkaline, it will fog a very sensitive plate. Keep the developer cool in summer, about 70° F. in winter, and in summer the strength of alkali should be reduced to one-half the strength used in winter.

If uncertain about correctness of exposure, start with developer diluted with plenty of water, so that you may see what the plate wants before it is too late. If you commence with a strong developer, the image will flash up at once and the negative may be spoiled before anything can be done to save it. If you commence with diluted developer you have a chance to change or modify the developer as the plate requires it. There are many points in developing to which a careful operator will give due attention, and the results will demonstrate that it is worth all the labor and study to thoroughly master the science of developing.

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### KILLED BY OVERDOSE.\*

BY J. F. RYDER.

THE uses and abuses of developing methods in general practice, is my subject. I give my impression and my opinion more as an observer than as a handler. I do not expect to tell you anything new, but may attract your attention to my impressions, in a manner to get some value, if any be in them.

The formation of the image in the negative plate and the positive paper are opera-

tions of such importance that we can hardly learn too much about them.

First let us consider the negative. You all know that pyro is the developing agent (I say pyro because it is almost universal in this country), and that the accelerator, whether it be ammonia, soda, or potash, is the power that sets the pyro at work. You understand that the pyro produces the intensity in lights or the white parts of your image, and that the accelerator takes care of the dark parts by working up the lower shadows, and giving detail and modelling through the lesser ones.

You all have your formulas, which you believe in. It is not my purpose to disapprove of any one, but to caution you to a careful use of all.

The exposed plate has an image in it; possibly the image is a landscape, some parts of which lie in full sight, while another part falls in deep shadow, or a clump of heavy dark foliage occupies the foreground—perhaps it is a room interior, which is dimly lighted, or the portrait of a person taken much in shadow. We are about to call that image into a palpable existence, to make a visible fact of it.

In case of either of the above described exposures shall we take the usual formula of proportion—so much No. 1 and so much No. 2, to so much water, as printed directions, to be found in every package of plates, says is proper? *Dare* we do it? I say no, if we care to find the best results. Now is just the time to go slow, the image can be better coaxed than driven. Take time, be patient, and get your reward. Understand you cannot get your density first and your details afterward, but *can* first get your details and afterward your density. It is always best first to lay the foundation and then erect the structure. Any builder will tell you that.

One of the most valuable elements of a developer is water, and it is too little used, or in other words, too little of it is used. Particularly for all plates of suspected underexposure or of doubtful time, as well as for all large heads, a weak developer is required to start, and if found to want more strength add pyro.

Looking to the pyro for density and the

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\* Read at the Chicago Convention.

accelerator for details, it is easy to understand by varying the proportions of these two elements, most any desired effect can be secured. The strong developer gives dense harsh results, while a weak developer gives soft and delicate effects, hence the value of more water. Remember the mild power is most effective for perfect results in developing. Don't give heroic treatment at the start in any case.

It often happens at the close of a day's work, with a big crop of negatives to develop, that the operator, anxious for supper, pushes the work too rapidly for safety. The next morning they are found coarse, harsh, and smudgy. They were killed from overdose. If the proprietor have a care for the good name of his work, the sitters must be recalled and retaken. Too much haste often spoils what a little patience would have saved.

What I believe to be the best and safest method is to commence with the developer weak, and with the accelerator in excess of the pyro. As the development progresses and a want of more strength or density is discovered, pyro should be added to give it. To wear the same weight of clothing throughout the year, in cold and in hot weather alike, in a climate like ours, would be reckless and inhuman, but no more absurd than to give all plates the same strength of developer. No man can give a formula for all plates and all conditions, but by care and observation all men who develop plates may learn to adopt proportion and strength of solution to the plate's requirement.

Now a word about making the image in the albumen paper. All printers know that silver makes the print—too many of them think the more silver used the better the print. As a rule, when anything is found to be wrong, more silver is doused as a remedy. Where forty grains of silver to the ounce of water is recommended by the albumenizer of the paper, who knows the proportion of salt used, and bases the requirements of silver upon that knowledge, the usual printer requires sixty grains. Just enough chemicals for plate or paper is better than too much.

The tendency to overdose is prevalent,

and the results are similar upon plate and paper alike. In both cases the overdose gives harsh effects, forms a crust upon the surface preventing the gradual and perfect conversion through the film, clogs the shadows, and flattens the lights.

It is not unusual to see prints with the shadows and dark parts hardly loaded with a bronzed mass and sometimes even a green fog from overdose. Gold is always subject to the same abuse, being sometimes used so strong as to destroy rather than produce good tones.

A little more knowledge among operators and printers of paper, and necessary conditions for successful work in their departments of photography, and a careful observance of the requirements would greatly lessen the mortality list in plates and paper.

### BLEACHING BROMIDE PRINTS.\*

BY F. C. BEACH.

PREPARING sketches in lines with black ink for photo-engraving purposes is now so general, that it has seemed to me there is a need, if possible, of using bromide paper as an aid to the artist for this purpose, since it would save time and be more convenient.

It is well known that if an untuned silver print be inked over in lines, the photographic image may readily be bleached out by pouring on the surface a solution of bichloride of mercury and alcohol. Or the print may be floated thereon.

To obtain the best effects by the photo-engraving process it is required that the original sketches be of large size, hence when a picture is to be reproduced it is necessary first to make a small negative, then a positive by contact, and third, from that to produce an enlarged negative, from which the silver print is made, over which the artist sketches.

It occurred to me here was an unnecessary amount of time lost provided we could utilize the bromide paper, for upon that we might enlarge directly from the original negative to any desired size, then by sketch-over the picture with ink, our object would be attained. But the difficulty that presented itself was the simplest and best way to

\* Prepared for the Chicago Convention.



bleach out the photographic image on the bromide paper, so as to leave a white background between the ink lines. In looking over several books on photography, I was unable to find a definite formula for this purpose, but recently I read that a picture on bromide paper was made to entirely disappear by the use of Ferric chloride.

Acting on this suggestion, I submitted a bromide print, after fixing and washing, to the action of a very strong solution of ferric chloride for many hours, with the result of bleaching it out until it attained a sandy brown color. Beyond this the solution had no further bleaching power.

Using a solution of bichloride of mercury on another print I was able to whiten it, but the shadows were of too-pronounced a brownish-yellow color to render it of any use. Recently I have tried a series of experiments which may be of some interest as showing by what simple means successful results may sometimes be attained.

I first made an 8 x 10 undertimed bromide print, and before fixing it in hypo cut it into four parts. Two of the parts I fixed in a mixed hypo and alum bath. The other parts I left unfixed.

Knowing that a weak solution of ferric cyanide of potassium (commonly termed red prussiate of potash) in hyposulphite of soda was the standard advised for reducing negatives, I inferred that if it was made strong enough it might act as a good bleaching agent by reducing away the picture.

Accordingly, I prepared the following solution:

Water . . . . .	6 ounces.
Hyposulphite of Soda . . . . .	480 grains.
Ferric Cyanide of Potassium . . . . .	240 grains.

dissolving each in the order named. The solution presented a dark green color, and kept clear for about an hour after which it became muddy.

Laying one of the unfixed portions of the bromide print upon a plate of glass, I poured over it the above solution; rapidly and in about a minute all traces of the pictures at once disappeared. After washing, looking at it by white light, it was, as I surmised it would be, quite yellow. The next question was to dissolve out the extra silver un-

acted on by light and whiten it. So I immersed it in the hypo and bath, but this had the reverse effect, for by decomposing the ferric cyanide, the paper rapidly changed to a beautiful Prussian blue color. When the print was dried, I afterward endeavored to eliminate the blue by immersing in a weak solution of carbonate of soda, but without success. I then subjected the fixed portion of the print to the same solution for three-quarters of an hour, but was unable to reduce away the picture sufficiently.

The result of this experiment shows that an unfixed bromide image may be immediately bleached out with the above solution, leaving a yellow color on the surface of the paper. I next made a solution of bromide of copper as follows:

Bromide of Copper Solution . . . . .	1 to 2 oz.
Water . . . . .	3 oz.

I then submitted an unfixed portion of the bromide print to its action. In the course of three or four minutes the image was transformed to a very light yellow sandy color. At this stage I dipped my finger in the hypo solution, then touched one corner of the print and noticed all trace of the picture to disappear at that point very quickly. I then inferred that a mixture of hypo with the bromide of copper would effect the same result. In this I was not disappointed, and found the following solution would effectually and easily bleach out either an unfixed or fixed bromide print in about five minutes time. Continual movement of the solution over the surface materially helped the bleaching action.

Bromide of Copper Solution . . . . .	1 to 2 oz.
Hyposulphite of Soda . . . . .	100 grains.
Alcohol . . . . .	1 ounce.
Water . . . . .	2 ounces.

The alcohol is added to prevent the ink from spreading.

I purchased the bromide of copper solution already prepared, but it is very easily made. The following is the usual formula:

Bromide of Potassium . . . . .	120 grains.
Water . . . . .	4 ounces.
Sulphate of Copper . . . . .	120 grains.
Water . . . . .	4 ounces.

Mix the two and we have a bluish bromide of copper solution.

A final experiment was the immersion of a bromide print for long intervals in two successive baths of boiling water. To my surprise, though the test was severe, no dissolving action took place. By running the finger over the surface of the print, the soft gelatine could be felt, but the picture appeared to be imbedded in the texture of the paper and did not disappear.

With this paper I submit the specimen sheets or pieces of paper treated in the different ways described for examination. The experiments were made upon Eastman's A. paper, developed with ferrous oxalate.

In respect to the finished polished print here submitted, my experience is that the best and easiest way to secure a high polish is to employ what is known as hand polished vulcanized rubber sheets, or specially prepared ferrotype plates, and also a paper coated with rather more than the usual amount of gelatine. Too little gelatine will give the surface of the print a mottled, half-finished appearance, particularly when observed by reflected light. In warm weather the prints will not readily strip from the rubber sheets unless they are fixed in a combined hypo and alum bath. Before squeezing on the rubber, the surface of the print should be rubbed over with fingers under water in the tray, to take off any of the milky sediment settling upon it while fixing. If this precaution is not observed the print when stripped will present a mottled, mealy appearance.

A very simple squeegee is a thick rubber tube about one inch in internal diameter drawn over a stick, made somewhat longer than the tube. The print is laid face downward on the rubber, the surplus water on the back being taken off with blotting paper, the roller squeegee is then rolled over the print pressing out all air balls, besides bringing the print in uniform contact with the rubber. When dry it is readily pulled off from the rubber, having a fine polish. No talc or oil is necessary. I have used these rubber sheets for nearly two years with perfect success, and do not notice that the surface becomes dimmed. For giving a high

polished rubber is unequalled. Simply squeeze the albumen prints wet on to the rubber the same as the bromides.

In conclusion, I may add that many of our valuable processes are founded on simple experiments carefully carried out; if then, all those photographers, who have the time and inclination, would study and experiment, note the results, and freely impart the same to others, how much richer in useful and practical information the entire fraternity would become.

I trust scientific experimentalists in photography will become more numerous in future years, especially in this country, and that a spirit of intercommunication of ideas and the exchange of the results of practical manipulation will override all feelings of hesitation, competition, and jealousy.

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### REPORT ON THE PROGRESS OF PHOTOGRAPHY DURING THE YEAR ENDING JULY 31, 1887.\*

I FEAR that the time has passed in which to report on the progress of photography in any of its various aspects during any one year, may be expected to contain anything sensational, or ever moderately interesting.

The various aspects of photography may be included under five heads of division: The optical, mechanical, chemical, pictorial, and commercial; and it seems to me, that with perhaps one exception, they have all reached a degree of perfection, from which any advance must be so gradual as to be but little perceptible.

The united labors of the mathematician and optician have already supplied us with many lenses for all the various kinds of work, that are as nearly perfect as we may hope to see, so that the photographer with sufficient means at his command and sufficient knowledge of his actual requirements can have no difficulty in selecting an instrument in every way suited to his purpose. The optician, however, is not resting on his laurels, brilliant as they undoubtedly are, but is still figuring and grinding in the hope of reaching a still higher degree of perfection.

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\* Read at the Chicago Convention.

It is, doubtless, within the knowledge of the members of the Convention, that there is still considerable prejudice in favor of certain of the lenses of foreign manufacture; but excellent as they certainly are, I know from much experience and careful examination, that lenses in every respect as good are made in this country.

The latest candidates for public favor that have come under my notice, are the "Universal Photographic Objectives," of Bausch & Lomb, of Rochester, N. Y. The makers claim for them absolute freedom from chromatic and spherical aberration, and perfect aplanatism; claims about which I have grave doubts, but as I have not seen the lenses, I merely record the facts of their introduction.

The new portrait Euryscope of Voigtländer & Sons is worthy of notice. It differs from the almost universally employed Petzval combination, in being rectilinear, and symmetrical, with both front and back lenses cemented, and in covering power is superior to it as eighteen and a half is to fourteen.

Morrison's Leukoscope is also a move in the right direction, especially as I believe that the photography of the future will deal largely in life-sized heads.

The single or old-fashioned landscape lens has probably been too much neglected, as it certainly gives a more brilliant image than the ordinary and more popular combinations, with no other fault than a slight curvature of the lines toward the edges, which in ordinary landscape work is of no importance. I am, therefore, glad to see that Swift & Son, of London, England, have introduced one, built up of three glasses, cemented, of course, and for which they claim a working intensity of the R. S. No. 3, equal to 7.3, or double the rapidity of all previously made lenses of a similar kind.

The discovery and introduction of the new German optical glass should not be forgotten, as, although it may not be extensively or advantageously employed in the construction of photographic lenses, it will probably be largely used in microscopic objectives, and it ought to interest photographers, as photo-micrography is slowly but

surely forcing itself on their attention. One of the troubles that has hitherto been incidental to the practice of that beautiful art was the difference between the chemical and visual foci of some of the objectives, but that need no longer exist, as several, if not all, of the best makers are now producing lenses specially corrected for the purpose.

Under this head may also be classed the optical lantern, which year by year increases in popular estimation, and which during the past year has been much simplified and improved by various makers. The lantern slide exchange club of several of our larger cities has given an impetus to slide making, which cannot fail ultimately to benefit photography, and the recent recommendation by Mr. John Carbutt, to add to the developer the well-known restrainer, ammoniac citrate, has materially facilitated the production of beautifully clear pictures.

An apparently trifling, but in my opinion valuable, improvement has been made by the substitution of a suitable double concave lens for the usual finder employed in instantaneous exposures. It costs much less, gives a more brilliant image, and is more easily managed.

Of the mechanical aspect of photography there is, of course, always progress to report, as a glance at the records of the patent office show. Shutters perhaps, more than anything else connected with the art, have received the attention of inventors. Early in the year, the Prosch-Duplex received the award of a Committee appointed to examine and report on the matter. Since then it has been considerably improved, and is probably as nearly perfect as it can be made. Mr. Hyatt, of St. Louis, has introduced a shutter of a different kind, but equally valuable for many purposes, and under certain circumstances. It is the invention of Mr. Hain, of that city, and, as it is fixed to the camera front, and so is available for all the lenses that may be employed, it gives both rapid and time exposures, and is reasonable in price.

During the year the authorities of the Patent Office have granted protection to some quarter of a hundred of either new or improved cameras, almost as many tripods and plate-holders, and quite a number of

burnishers, coating machines, washing troughs, printing frames, etc., with one photo stamp sheet and the apparatus for its production, and one photo-chromograph.

No doubt, many of these patented articles will not be known or heard beyond the circle in which they originated, but there are many of them that are real improvements, and such as will add largely to the comfort of the photographer.

The practical side of the chemistry of photography, while to the majority of the members of the Convention the most important, is also that in which the greatest progress has been made. The condition under which silver bromide and iodide suspended in a solution of gelatine, can be made to assume particular qualities or properties, are almost daily being better and better understood, so that makers of sensitive surfaces can now at will produce plates sufficiently varied in character to suit any particular requirement. The intelligent photographer is now able to select just the kind of plate that is best suited for any special purpose, and the time will soon come, if it has not already arrived, when he would as soon think of using one particular variety of plate for all the various kinds of work, as driving tacks and ten-penny nails with the same hammer.

Ortho-chromatic photography has also made steady progress, not so much in the addition of anything new, as in attracting public attention, and securing popularity. Early in the year Mr. Carbutt put on the market color-sensitive plates, and color screens, by which the most sceptical may easily be convinced of the advantages of the method in all cases in which an approach to true color translation is desirable. Mr. F. E. Ives has shown some very excellent results in this direction, and good work has been done in England and Germany. The process has been reduced to perfect simplicity, and suitable solutions with suitable directions may be obtained of any stockdealer, so that the photographer, at a trifling cost, can ortho-chromatize his plates as required.

In the theoretical chemistry of photography at least one important advance has been made. Mr. M. Carey Lea, of Philadelphia, who was the first to advocate what

has been known as the mechanical theory of the latent image, has been the first to give it what appears to be a fatal blow, by the production of subhaloids of silver, and leaning strongly to the inference that the older subbromide theory was, after all, the true one. He is also of the opinion that if ever photography in color is to be obtained, it will be through what he has produced, and called photo-chlorides, photo-bromides, and photo-iodides.

Photography in color, so called, has been much brought up, and not with its usual fate, to burst like a soap-bubble. Mr. Mayall, and the Colliyer Syndicate, both of London, England, have both claimed to have discovered the philosopher's stone of photography, but while the daily papers tried to send it up like a rocket, the ever-watchful photographic journals brought it down like a stick, by showing that in each case it was the old, old story, daubing color behind a transparent photograph.

Of the practical phase of photography, though the most important, I feel constrained to write in less satisfactory terms. Not that no progress have been made during the year, but because it is the only one in which it seems to me there is much room for improvement, and that the opportunity is not sufficiently taken advantage of. No doubt a careful examination of the pictures on present exhibition will show that there is much to gladden the heart of the true artist, and prove that photography has a claim, and a very good one, too, to be considered means whereby works of fine art may be produced. But there are many, alas! Too many photographs on the screens that give simple evidence that their authors have no higher idea of the possibilities of photography than that it is a means of producing whatever chance may place within range of the camera. Fine art, of which photography is a thoroughly capable exponent, does not take nature as she finds it, but combines the lines, and arranges the lights and shades in such a manner as to convert even a very commonplace object into a thing of beauty and a lasting joy. The effect of such treatment in portraiture, the department in which the majority of the members of the Convention are more immediately inter-

ested, is to produce not only a mere likeness of the sitter, but something that shall show that while he sat he was a living, thinking being, and prove that in the hands of a capable photographer, the camera is as able as the brush to portray the various emotions as they pass across the mind like clouds on a sunlit landscape.

And now I come to the last of the five phases of which I propose to speak—the commercial. I approach this with diffidence and reluctance. I know I am not in sympathy with probably a majority of the members of the Convention, they regarding it as the sole aim and object of photography, while I look upon it as simply the incidental reward to its successful practice. The members will, however, bear in mind that I prefer to speak only for myself, and they are, of course, at liberty to take what I say only for what it is worth.

How stands photography then, from a commercial point of view, in comparison with last year? Both, better and worse. Better, because new applications have been found for it, and are being almost daily found, in consequence of improvements in what are generally classed under "process work." While other countries have made steady progress, our own has more than kept pace with them, and I think I am warranted in saying that the Photo-gravure Company, the Mosstyp Company, Mr. Gutekunst, the company working Ives' process, and others, are turning out now work superior to anything in the same line in any other part of the world. Worse, because of the continued downward tendency of prices obtained for ordinary photographs, or perhaps more correctly, the ever increasing number of photographers who think they must sail with the tide and join the low-priced ranks in the hope of attracting the trade that will not come. The disease is, indeed, a desperate one, and like all desperate diseases has been the object of many proposals for its annihilation, conventional interference, boycotting stock dealers who supply the low-priced men, etc.; and more lately, and most absurd of all, to ask Congress to fix a uniform price for pictures. Such quack remedies, like quack remedies generally, do not touch the root of

the disease, and serve only to distract the attention from that which would effect a permanent cure. Photographs, as such, are like every other commodity, subject to the everlasting laws of supply and demand, and their prices cannot be permanently affected by any kind of artificial restriction. The man who produces photographs simply as a business, must make up his mind to compete on fair terms with others in the same line, and should cutting get below the cost of production and living profit, the weakest must, of course, go to the wall. But he who succeeds in stamping his own individuality on his work lifts himself out of the arena of trade and into that of a profession, and may then fix his prices to suit himself without regard to competition.

JOHN NICOL.

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### PHOTOGRAPHY AT THE MANCHESTER EXHIBITION.

At the many "Royal Jubilee Exhibitions" which are being held this year in England, photography occupies a prominent place. Particularly is this so at the one held at Manchester, which, in addition to having gathered together perhaps the most complete and representative collection of modern English art, was also an excellent display of photography. There was a number of relics, including some very old collodion plates and some of the first daguerrotypes taken in England; and also a number of very interesting and rare old books, either upon the subject of photography or illustrated by it.

The photographs themselves occupy a large court in the building, and include examples of photo-mechanical printing methods, as well as photographs proper. The display of these is, as a whole, excellent, though by no means calculated to make the American lose his regard for the work of his own compatriots. Some of the large heads are very good. Perhaps the most interesting of the photographs is a series taken by M. Walery, the Royal photographer, of two English ladies in their own home. The idea of a photographer coming to his patrons in place of his patrons

coming to him in his studio is nothing new, but is rather more frequent here than with us. It is seldom, however, that better results of this system have been shown. The fair subjects are seen sitting in their own drawing-room, on the stairs, at the library-door—at home “in their habit as they live.” The photographer, however, found a genuine good thing in a high window

opening into a rather dim room. The light-effect, the sitter being placed directly between the window and the camera, is very novel and thoroughly charming. One “St. Cecilia” study, with the light illuminating the outlines of the head, and casting a soft glow over the rest of the picture, is a most original and beautiful study.

F. H. W.

## Editor's Table.

A QUIANT way of putting it. One of our best buyers of *Quarter Century* is the firm of BUCHANAN, BROMLEY & Co., 1030 Arch St., Philada. Their last order reads as follows:

PHILADELPHIA, August 31, 1887.

DEAR SIR: You may please send 250 years in photography—*i. e.*, 10 copies of *Quarter Century* and 1 copy of *Photographics*.

We have sold the last copy of *Quarter Century* we had on hand and must have more at once. A photographer without a copy of it is like the Chinaman's cable car—“No pushee, no pullee.”

This is a quaint but apt way of putting things and holds a lot of truth.

Mr. BUCHANAN called upon us recently and says that the business of his firm during June and July was never excelled by any previous summer months, and predicts a grand fall and winter.

A COMMENDABLE IDEA.—Mr. SAM. C. PARTIDGE, San Francisco, Cal., the popular dealer in supplies employs an instructor in his establishment to whom his patrons are welcome to apply for “drill” in all photo. manipulations. Thus he keeps in step with the growing interest taken in our art everywhere.

PICTURES RECEIVED.—From Mr. C. C. CRABB, Seymour, Ind., some excellent cabinet pictures, including several natural poses of little Gracie, “the light of the studio.” Mr. CRABB also sends us a novel picture of the “shooting of a natural gas well” at Seymour. One hundred and sixty quarts of nitro glycerine were used and the water and rock débris shot up in one grand volume nearly two hundred feet into the air. The instantaneous view of the scene is very impressive. Messrs. MACHETTE BROS., Scranton, Pa., have been making lately some ambitious and excellent statuary groups. Three

of them are before us which are really very creditable. The management of the lines and the lighting are remarkably well done. We like to see such efforts in the art direction. Mr. H. F. QUIGGLE, Doland, Dakota, has sent us a refreshing lot of stereoscopic views which are artistically chosen and technically good. Mr. Quiggle evidently knows that it pays to *climb* for good points. Mr. WALRATH, of Norwood, N. Y., has sent us some cyclone pictures and some examples of his portrait work. “Three little maids from school” in Japanese costume is a very excellent picture. From Mr. C. L. JUDD, Jamestown, Dakota, we have original prints from his famous cyclone pictures, which appeared, engraved in *Scribners'* magazine for August. They are wonderful. Mr. H. REDMAN, Cynthiana, Ky., favors us with a sweet picture of a young Miss, and one of a group of children with a dog whose clamor after a canary they are restraining. Mr. REDINGTON, of Waddington, N. Y., sends us the premium baby pictures this time—two of as merry a little Miss as ever tantalized a camera. The one with her tongue protruded between her pretty teeth is very cute.

THE A. M. Collins Manufacturing Co.'s exhibit at Chicago. Decidedly the richest and most finished exhibit at the Chicago Exhibition was that of our well known and only manufacturers of first-class card stock. A carpeted enclosure was furnished with desk, chairs, and framed samples of cards of lovely patterns and designs, while from the centre rose a high revolving stand with about fifty hinged wings whose sides were covered with the splendid manufactures of the company, all “as pretty as pieces of jewelry.” There is no excuse for bad quality or bad finish when such goods are available. The choicest of all designs yet is the new card with the names stamped in pure

gold. We gave as our exhibition "souvenir" a charming example of this work, which read, "Wilson's Quarter Century in Photography, careful gleanings from 25 years' study of things pertaining to photography." The edges are beveled and scalloped, and the whole design is fine. We have some left and will mail one to all who desire it. Write quickly.

"GOOD FOR WINTER OR SUMMER," Messrs. BROWN & GOLDSMITH write us is their already popular "Preservative" for sensitized paper. It is not only a convenience but saves time and gold and paper. Have you yet tried it?

THE Tin Cylinder Cans are recommended as the only safe thing for the "Sensitized Paper Preservative."

INDIA TINT BORDERS are coming into fashion again and we shall soon present our readers with a fresh example in connection with "Our Picture."

AN IMMENSE show of backgrounds was made during the Convention by Messrs. SMITH & PATRISON at their store Nos. 145 & 147 Wabash Ave., Chicago. An entire floor 40 x 160 feet was crowded with them, of design and finish and in price excelling all compeers. Over 6000 feet of them in one room. An endless variety of accessories was sandwiched in between them. There never was such an array. But it is all broken up now since the visiting photographers were tempted to leave such orders as to cause a general scattering of the beautiful goods. In the floor above, of same dimensions, in addition to their usual stocks, was a fine array of the specialties by this firm, including their "King of Burnishers," the "Quadruplex Enameler," the "Duplex Rotary Polisher," "Magie Camera Stands," "Queen Posers," Baldwin's "Baby Holder's," "Common Sense Trays," and other articles. The "Cartridge Paper Excelsior Background" is now sold as low as ten cents per foot.

THEY ALL EXPOSE AND DEVELOP. Some time ago we announced that every employée of WILSON, HOOD & Co., Philadelphia, could expose and develop a dry plate. As proof of how far down this assertion reaches we have just received a cabinet picture of "Billy" (over twenty years the packer for the firm), seated amid a confusion of goods with the shelves of dry plate stock as background, which was carefully posed, lighted, and developed by the messenger boy "Hugh."

It is a real picture and is valued because so excellent a portrait of an old friend who "came up after de war" to "look for a position," and who got one which he has held ever since. Now, soon it will be so that next to a baby chariot the fond parent will buy a camera "for the boss of the household."

A FINE COMPOSITION. Mr. D. H. ANDERSON, 785 Broadway, N. Y., has favored us with a copy of his celebrated picture of "The Veteran Firemen" of this city. It is a 19 x 35 reduction from Mr. Anderson's original composition picture, which is about 6 feet by 10 feet. About 150 firemen stand at "parade rest" with their Engine "Veteran," on Broadway opposite the City Hall Park near Chambers St. The park is the background with the New City Hall and the towering newspaper buildings showing through and above the trees. The perspective view of Chambers Street is very finely managed. The whole picture is a photographic triumph.

The bits of life in the foreground are just sufficient to add contrast and are successfully managed. Few artists attempt such monstrous works as this, but Mr. Anderson has had great success with many of them.

THE excursion of the Amateur's Society and the Photo. Section of the American Institute, N. Y., on Saturday, Sept. 3d, was a grand success. The steamer "Blackbird" was chartered for the whole day. After cruising around the harbor until 1 P.M. she made fast at the foot of 31st St. E. R., where about thirty more embarked upon her and then followed a delightful sail to Glen Island, one of the prettiest rural resorts in the world. Many distinguished men were present, and quantities of alert cameras. The clam bake was stacked at 4.30 P.M., and was participated in by about one hundred hungry gentlemen and ladies. The day was perfect—the moonlight return sail was superb. We have rarely had so much enjoyment in so short a time and the Presidents and Secretaries and Managers are all to be congratulated upon the unmarred occasion from beginning to end.

Quarter Century in St. Paul. Mr. F. H. WHITSTUCK photographer at the "Western Capital" says, "Quarter Century is a more valuable work than I had anticipated."

A History of Photography, by Mr. W. JEROME HARRISON, will be issued soon by the Scovill Manufacturing Co.

SCHUMANN'S *Southern Photographic Bulletin*, Vol. I., No. 1, lies on our desk, a ray of sunshine from the new South, full of bright bits and enterprise. Mr. Theo. Schumann, Atlanta, Ga., is the publisher.

"Quarter Century came all right—rich. More later." J. C. SUNDERLIN, Flemington, N. J.

*Photographic Mosaics*, 1888, is in preparation, and articles of practical value will be welcome as long as its pages will hold them, from all our readers. A handsome "Author's Copy" will be given to each contributor. Please send your article now.

FIVE more honorable men could hardly have been chosen than those selected by the P. A. of A. so unanimously as its Jury of Prize Awards.

PUBLICATION of the Convention papers will be completed in our next.

RETURNED FROM EUROPE.—Mr. G. GENNERT, of 54 East 10th Street, New York, has just returned from his semi-annual tour to Europe in the interests of "Eagle" paper, looking hale hearty, and well. He says the prospects for a large importation of paper the coming season are fine.

A SAD CASE.—One of Mr. GENNERT'S pleasures while absent was to call, in Dresden, upon the aged parents of Mr. HANS WIEDEMAN, one of his employés, a promising young man. He carried good news to father and mother, and received their thanks. But he did not know that at that very time young Wiedemann was languishing in one of our hospitals. He was thrown down by a street car, and his leg so crushed that amputation was necessary. But he could not rally from the shock and died. His body was sent to Dresden as the next message to his father and mother. All frequenters of Mr. Gennert's store knew and liked him.

*The World, as We Saw It*, by Mrs. AMOS R. LITTLE, Philadelphia, is a royal octavo volume of 475 pages, printed upon heavy, white calendered paper, illustrated by 40 full page photogelatine prints and numerous engravings, bound in delicately tinted cloth with a full side stamp in gilt of æsthetic tracery as deft in line as any which ever came from the designer's easel. It is the most elegant specimen of book making which has yet appeared amid the splendid

works made possible by intelligent travel and photographic illustration.

The talented authoress while making a trip around the world with her husband, denied herself many a sight and many an hour of enjoyment in order to make record of the best things they saw *en route*. And now, with characteristic generosity, she permits everybody to share a part of her enjoyment by publishing this elaborate record—"The World, as we saw it." An acute observer, with a keen sense of humor, a splendid capacity for enjoyment, a lot of vivacity, a happy temperament, and an "individual" way of putting things, Mrs. Little has created one of the most charming travel-books there is.

The expedition started from Philadelphia and proceeded to California. Thence to Honolulu, New Zealand, Tasmania, Australia, China, Japan, Straits Settlements, India, Java, and then return to Egypt, Palestine, Turkey, Greece, Bulgaria, Hungary, Austria, Russia, the Netherlands, Germany, France, and England.

And all along the way the bright bits and pin points have been caught in original style and formed into a charming mosaics.

Whether in the hot jinrickishas, the fur lined droschky, riding the towering elephant or the humble Arab donkey, sitting under the soft air of the punka, or toiling down through the suffocating passages of the Great Pyramid, the authoress writes, "I enjoyed it immensely." And we all catch the infection as we read her splendid work. Mrs. Little is to be particularly complimented on the selection of her illustrations. It was no easy task in these days of abundant travel and plenteous photography to select such as would be fresh and new, but she has done so, and they are representative as well. In "Our House at Nikko" we see how the traveler lives in Japan, and seated upon the balcony is the authoress and her husband, quite "at home." We put down the book with a long breath and the feeling that it will be a longer time before we shall have another such a treat. We feel a sense of gratitude too, when we read on the page next to the last, "We were greatly favored in all our wanderings. We had been blessed with continuous good health and mercifully preserved from all danger"—and with patriotic pride when, after so much sight seeing, we see this: "As we neared the New World, we stood with anxious hearts watching for the first sight of land. Beautiful were its shores and harbor."

*The World, as We Saw It*, is published by Messrs. Cupples, Upham & Co., Boston.







N. SARONY,

PORTRAIT STUDIES

NEW YORK.

THE  
**Philadelphia Photographer.**

EDITED BY EDWARD L. WILSON.

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No. 307.

**SOCIETY GOSSIP.**

REPORT OF THE MEETING OF THE PHOTOGRAPHERS OF TEXAS, held at Dallas, August 6, 1887.—In reponse to the invitation that had been issued, a goodly number of photographers from different parts of the State met at Dallas, Texas, August 6, 1887, and took the initiatory steps of organizing an Association. It was decided that the name of the Association should be "The Texas State Photographers' Association," and the following officers were elected for the ensuing year: J. H. Webster, President; G. C. Rhine, Vice-President; C. F. Cooke, Secretary, and S. T. Blessing, Treas.

Committees were appointed. The one on Constitution and By-Laws was instructed to prepare the same and report at the next meeting for consideration and adoption.

It was decided that the next meeting of the Association will be held at Dallas on the 27th of October and continue three days. This will be during the "Texas State Fair and Dallas Exposition," which opens October 20th and continues to November 7th, and as this will afford unusual attractions, it is to be hoped all who can attend will avail themselves of the opportunity of attending both the Fair and the Association meeting. By resolution each and every photographer in Texas was invited to become a member of the Association.

It was also resolved that we, as an Association, make an exhibit of our work at the said "Texas State Fair and Dallas Exposition," and that a Committee be appointed to

secure space and make all necessary arrangements for such exhibition, and to report the same.

Said Committee report that they have secured the necessary space, and invite each member of the Association, and those contemplating becoming members, to send them such photographic productions as they may wish to put in display.

Each package should be securely packed and the name of the exhibitor so marked that it may afterward be identified, and expressage prepaid, and shipped so that it will reach Dallas not later than October 18th, as the Fair Association requires that all exhibits shall be in place on the opening day, which is October 20th.

Mark package, "Texas State Photographers' Association, Care S. T. Blessing, Dallas, Texas." and it will be received and properly arranged in position, and when Fair is over will be reshipped according to instructions of sender, and all without charge.

No individual premium is offered in this department, but it is believed that the pride we take in our art will be sufficient incentive for a good display.

Each individual photographer in the State of Texas is cordially invited to be present at our next meeting, and to join our Association and strive to make it what it is hoped it will be, a mutual benefit to the members.

H. B. HILLYER,  
A. R. BILLOWS,  
S. T. BLESSING,  
Committee.

PORTLAND, OREGON, CAMERA CLUB.—  
Dear Sir: I am requested by the "Camera Club," of Portland, to inform you of the reorganization of the above club, which is now large and prosperous. The officers are, President, Frank Woolsey; Secretary, W. F. Woodward; and Corresponding Secretary, W. W. Bretherton. Your journal is kept on the files of the club.

Very respectfully,  
W. W. BREThERTON,  
Corresponding Secretary.

### PERTAINING TO THE



THE following rules and conditions governing competitions for the Blair cup have been adopted by the Executive Committee.

1. No picture having been previously entered for competition shall be allowed to compete for this cup.
2. Nothing of an advertising nature will be permitted to be used in connection with this competition.
3. The award shall be decided by a Committee of three to be appointed by the Executive Committee.
4. The Executive Committee shall select a subject to be illustrated, and no other picture shall be considered eligible.
5. The cup shall be awarded for the most meritorious photograph illustrating the subject decided upon the year previous.
6. The winner shall be the custodian of the cup until the next Convention.
7. It shall be necessary for the cup to be won twice by the same person before it becomes his property.
8. In the event of the cup not being won twice by the same person after having been

competed for three times, it shall become the property of the Association.

The subject to be used for illustration for our next Convention has not yet been selected by the Executive Committee, but it will be announced as soon as decided upon. In the meantime I shall be glad to receive any suggestions from those interested as to the class of subject thought most desirable.

Respectfully,  
H. S. BELLSMITH,  
Secretary P. A. of A.

### HYDROCHINON, AS A DEVELOPER OF DRY PLATES.\*

BY C. E. VAN SOTHERN.

THE various possible, and oftentimes also nearly impossible forms of developers, which, from the first practical application of the gelatine dry plate process up to the present day, have been brought forward, would fill many a page of photographic literature, and upon the experimental photographer has devolved the task of learning from careful and practical tests the characteristic qualities of each individual formula, of determining the amount of advantage gained from applying one or other, simple or modified, to certain special purposes, and of deducting therefrom the relative value, as to general or special usefulness of the many different mixtures and components. His work, though highly interesting, has been arduous and difficult, many a golden kernel of wheat has been brought to light out of an abundance of worthless chaff, and too much praise cannot be bestowed upon such men as Captain Abney, Dr. Eder, Carey Lea, and many others for the invaluable services, which, through their untiring energy on the field of photo-chemical research they have rendered to our beloved profession. Yet, with all due appreciation of these scientific investigations and the many valuable discoveries to which they have led, it appears to me, that no line of research in photographic chemistry has brought less direct tangible benefit to the practical worker, than that on dry plate

\* Prepared for reading at the Chicago Convention.

developers, ferrous oxalate and alkaline pyro, in more or less modified form, being to-day, as they were five years ago, the only reducing agents in practical use with more than 95 per cent. of all the photographers on the globe. Here, then, seems to be a chance for the introduction of something comparatively new, and on that ground I hope to be pardoned, this being my first publicly committed offence in this direction for bringing to the notice of this convention, a developing agent, which—though photographic periodicals have once or twice mentioned it, and though its name “hydrochinon” is undoubtedly familiar to many—is actually so very little known, that a few words in its favor may perhaps tend to bring it into more general use and eventually gain for it the appreciation which it so highly deserves. The chief reason for its lack of present popularity is probably its rather high price, but, were its excellent qualities better known, I have no doubt that its apparent expensiveness would no longer deter photographers from engaging its valuable services, for in the end hydrochinon will prove just as cheap as pyro, and, perhaps, more so than ferrous oxalate.

Hydrochinon, a derivative of chinon, is a hydrocarbon of the composition (C<sub>6</sub>H<sub>4</sub>, 40:2) similar to that of pyrogallic acid (C<sub>6</sub>H<sub>3</sub>, 40:3) and its properties, too, bear a strong resemblance to those of this our most important deodorizer. Its capacity as an oxygen absorber is even greater than that of pyro, the comparative energy of my normal developers being as seven to nine in favor of hydrochinon, but this affinity for oxygen is not as greedy as that of pyro, and its action, therefore, less violent and under better control, and in this property of applying its great reducing force slowly, gradually, without unnecessary waste and without exhausting its strength from the outset. I find the chief advantage of hydrochinon over pyro, its developing action, as said before, is necessarily slower, but, on account of the great constancy of its reducing power, marvellously effective, each molecule of exposed film, no matter how feeble the impact of light, having to submit in due time to its persistent, and apparently untiring energy. Its reducing qualities, too, whether in stock

solution or mixed developer are accordingly excellent. I have a case on record when with 6 ounces of developer, containing 36 grains of hydrochinon, I developed 168 plates, transparencies and line work negatives, without any addition whatever by merely slightly increasing the time in the camera, after which the mixture was bottled and served as an excellent “starter” for several subsequent exposures. A patent rubber stoppered beer bottle full of the stock solution, put up on January 3d, and kept in a dark room at a temperature varying from 50 to 90 degrees, is to-day almost colorless and good as freshly mixed. Hydrochinon is but sparingly soluble in cold water, fifteen grains per ounce being about a saturated solution, but this is amply sufficient for practical use.

Another excellent quality of hydrochinon is the beautiful tone of its deposit, a fine, velvety engraving, black, and a magnificent clearness of shadows, which for transparencies, lantern slides, and line work negatives especially, is unequalled by any other developer of my acquaintance. Alum and restrainer are unnecessary. The addition of bromide changes the tone to a rich brown, but it should be made very cautiously, as one developer 1 ounce of developer of a 10 per cent. solution of potassic bromide will exercise a quite perceptible retarding action and render the mixture rather unfit for future use. A few drops of a 1 per cent. solution of hypo will to some extent restore the energy of the developer, but such doctoring is, at the best, somewhat hazardous. My formula, which, after much experimenting I have found in more than four years' practice to be thoroughly reliable and in every respect satisfactory, is as follows:

## No. 1.

Soda Carbonate . . .	60 grains.
Water . . .	1 ounce.

## No. 2.

Hydrochinon . . .	12 grains.
Soda Sulphite . . .	60 “
Water . . .	1 ounce.

## For use mix:

No. 1 . . .	1 ounce.
No. 2 . . .	2 ounces.
Water . . .	1 ounce.

The water is added either warm or iced, according to the season, in order to give to the developer the proper temperature. The image will make its appearance rather slowly, on a properly exposed plate in about two or three minutes, but, once started, development will proceed rapidly and progressively to the attainment of the finest detail and any required density. The film will never become stained under the most protracted development, and, owing to the strong toning action of the hydrochinon, frilling, even in warm solution, is exceedingly rare. The same conditions that govern pyro development with regard to intensity and detail hold good in the case of this reducing agent, an increase of hydrochinon giving strength and dilution producing detail. The amount of alkali in the formula given above being already large, I do not favor an increase of it with a view of forcing up detail, my mode being to obtain the proper intensity first and then, if required, finishing up for fine detail in water made slightly alkaline with soda carbonate. The plate is, of course, transferred to this without washing.

Hoping that some of the fraternity may give this developer a thorough trial and succeed with it as well as I have done, I remain with best wishes for the convention of the P. A. of A.

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### PHOTOGRAPHY BY MOONLIGHT AND KEROSENE LAMPS.\*

BY JOHN A. FRITH.

ALTHOUGH I am a settled down photographer of twenty-one years' standing in these Islands, after a previous tour of eight years through the West India Islands and Cuba, yet I continue to take a lively interest in the proceedings of your several conventions.

During the nitrate bath reign some years ago I turned my attention to moonlight photography, using plates treated with tannin, but without results; I have often wished to hear of, or see examples of work taken from negatives actually exposed at night, but all the photographers that I have

conversed with on this, both in the United States and transient people here, have always presumed moonlight photography to be an impossibility. After much careful thought, in February, 1887, I commenced to experiment with a view of solving the question, the result is that I can produce views taken from negatives exposed at night, as clear as any negative exposed at mid-day. The example enclosed, marked No. 1, is a print from a negative exposed on the evening of the 8th of February from 8 to 11 P.M.—full moon.

Example No. 13 is from an exposure on the evening of the 9th, March full moon, with a very thick permanent cloud, concealing the moon from view during the exposure.

The object of this picture was to try how sharp it was possible to photograph a building at night with the interior of the store illuminated with kerosene lamps.

The result was that the keyhole of the lock was distinctly brought out, and a cambric American flag at the door of the upper story was very satisfactory to the American lady who occupied that portion of the building. There was too much light in one store, but in the centre where the lamps were turned down the result was satisfactory, there was not any light in the upper room, with the flag intentionally arranged so that the light should not filter through the flag and destroy the effect.

Having solved the full moon mystery, I next directed my experiments to photography with the moon on the first quarter, and once for all I will state that the time to take the negatives for moonlight effects is, when the moon is from seven to eleven days old, giving the same exposure as a full moon negative would require; then the negatives will give positives just the effect visible with the eye. No. 22 was taken on the 3d of March, the evening after the first quarter, very hazy winds force 5, thermometer 60 degrees, the shadow was in front; the exposure was from 7.45 to 1.50 P.M., just two hours and five minutes. The exposure was short by one hour in consequence of a circumstance over which I had no control. After fully developing or fixing the plate it was immersed for a few sec-

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\* Prepared for reading at the Chicago Convention.

onds in a very weak bath of mercury and water, washed, and finally plunged into a bath of very weak aqua ammonia and water, until the negative reached the printing quality, which must be judged by the photographer's eye rather than by any written instruction or direction. You will notice that one of the front blinds is open with a longer stick than the other. This was intentionally done by the owner in order that he would know the proof thereby. The lights inside are distinctly seen through the windows where there were lights. The dry plate on which this negative was taken was not a very good one.

In operating at night I find it impossible to focus at night. Something must be focused in daylight about the same distance from the operator as he will be from the object to the photographer at night. I used an American lens c.c.  $3\frac{1}{2}$  " diameter with a  $\frac{1}{4}$  " stop at midday to make similar positives. I used just whatever plates (American) I had in stock, in fact, I am sure I can expose successfully at night, any dry plate that will give good results in the day had I different brands here to experiment with.

The proper time of exposures are with  $\frac{5}{8}$  inch stop—

To give a daylight clearness by full moon, three hours.

Dark landscape.

Moonlight effect by full moon, two hours.

Moonlight effect by first quarter three hours.

Shadow in front dark covered building.

Moonlight effect on light colored scenery first quarter two and three-quarter hours.

The developer for moonlight work is,

No. 1.

Carbonate Soda . . . . .	2½ ounces.
Sulphite Soda . . . . .	2 "
Bromide Ammonium . . . . .	24 grains.
Water . . . . .	72 ounces.

Sulphuric acid 1 drop in 1 ounce of water ; add half of the quantity.

No. 2.

Pyro . . . . .	1 ounce.
Alcohol . . . . .	2 ounces.
Water . . . . .	6 "

To 6 ounces of No. 1 add 1 fluid-drachm of No. 2.

Have a little patience, the negatives will gradually come up with a dark night transparent aspect. Their appearance will disappoint you when finished, do not hurry or force them if possible. They will print quickly and good.

By following my direction, developer, focus, stop, and length of exposure according to effect desired, *I am satisfied any practical photographer will succeed, and I sincerely desire will lend me a few of their examples.*

No. 14 is an interior by kerosene lamps. To be successful, the lamps must not be in view of the lens, examples printed from negatives with the room illuminated by the lamps on the several tables developed the party near the lamps over exposed. To obviate this difficulty I placed two lamps on the floor and two in chairs in one corner of the room, behind a very coarse cotton screen, thereby giving an equally divided filtered light over the room. The exposure was four and one-half hours,  $3\frac{1}{2}$ '' lens,  $\frac{1}{2}$ '' stop.

It is not absolutely necessary to work with a curtain or screen provided the lamps are not visible through the camera without a screen, the exposure is shorter.

*Supplementary.*—Example No. 23 is from an exposure on April 25, 1887, beautiful bright starlight and a very young forty-eight hour moon for a short time. This negative has more intrinsic photographic value, scientifically, than any other exposure, it is really a *starlight exposure*. The shallow water between the two small islands over the ship chimney is not only distinct but a flagstaff and houses on the most distant hills, four miles from the camera, are visible. The foliage and houses in the front have a peculiar shade that will be impossible to produce by daylight. The exposure was six hours, with  $\frac{5}{8}$  stop.

Example No. 24 is an exposure on April 30, 1887, with the same plates as No. 23, first quarter of the moon shadows in front, very dark green foliage in a valley. The exposure was two and one-half hours ;  $\frac{1}{4}$  stop. Had I preferred to make this picture with the light reflected on the screen instead of against the light, the picture would have been as clear as daylight exposure. The negative requires as much time to print

from as negatives taken in the usual daylight and full of detail. I can assure the photographic fraternity that the most beautiful photographic effects, soft and artistic, can be made by moonlight.

### INTENSIFICATION OF GELATINE NEGATIVES WITH NITRATE OF SILVER, GALLIC ACID, AND PERCHLORIDE OF IRON.\*

BY JOHN BARTLETT.

ON the very advent of the gelatine plate, its detractors found their strongest attack in the difficulty attending intensification. Many and evil, one is almost tempted to say, are the methods which have been proposed to infuse strength into a weak dry plate negative.

There is such a liability of the image to change, and so great danger of staining the film attending the operation, that photographers have come to look "askance and strangely" at any new formula proposed.

Despite the injunction to secure proper density by proper exposure and development, there are times in everyone's experience when recourse must be had to some means for saving a negative, to save one's reputation.

It is just at such moments that one longs for the good old silver intensifiers of colloid days. Mercurial intensification notwithstanding the facility and rapidity of its action, has proved too often a delusive hope.

Intensification with silver is the great desideratum. The only drawback to its general employment is the great danger of staining the gelatine film. Nevertheless, the results it yields, when care is exercised, are so far superior to those obtained by any other method, and the assurance of permanency so much greater, that many endeavors have been made for an application free from stain.

Hitherto the methods employed have insisted upon the necessity of the use of acids and other restrainers directly in the intensifying solutions; but, as Dr Ellerslie Wallace has shown in a paper on "Silver Intensification," published in the June, 1887, number of the *American Journal of Photog-*

*raphy*, the presence of an acid with the silver and gallic or pyrogallic acid, tends only to slow the operation, and by subjecting the plate longer to the action of the fluid, really increases the risk of discoloration.

At the April meeting of the Photographic Society of Philadelphia, I communicated a method for intensifying gelatine negatives with nitrate of silver and gallic acid, in which neither an acid nor any other restrainer is added directly to the intensifier. The formula was the result of the experiments of Mr. John G. Cassebaum, of Philadelphia.

The negative, after it has been thoroughly fixed and washed, is placed in a preliminary bath composed of

Nitric Acid . . .	10 drops.
Chrome Alum . . .	1 ounce.
Water . . .	20 ounces.

Citric or acetic acid may be substituted for the nitric acid in the proportion of one ounce to twenty of water.

In this bath the negative is rocked for a few minutes, rinsed under the tap, and then placed in the intensifier, which is made as follows:

(A) Eighty grains of gallic acid are dissolved in one ounce of alcohol (95 percent.) and the solution kept until all turbidity subsides. Care must be taken to select a good quality of gallic acid, as upon its purity everything depends.

(B) Thirty grains of nitrate of silver are dissolved in one ounce of distilled water, and after a good sun bath, filtered from any black sediments.

To prepare the intensifier for immediate use, take one drachm of each of these stock solutions (A and B) to the ounce of water.

The gallic acid and the nitrate of silver may be mixed directly in the graduate and the water added afterward without any fear of precipitation, provided everything is clear and the chemicals pure.

Place the negative in a scrupulously clean dish, glass or porcelain preferable to rubber, and pour over the intensifying solution, keeping the dish in gentle motion to insure uniformity in the deposit. The negative will gain in strength more rapidly than when a restraining acid is present, and any desired degree of intensity may be obtained.

\* Prepared for the Chicago Convention.



The essential conditions for success are thorough elimination of hypo from the film and the utmost cleanliness in manipulation. The necessity of the preliminary bath will be apparent at once if application of the intensifier is made without its previous agency—an almost immediate staining of the negative taking place.

The object of the chrome alum is merely to counteract the softening influence of the acid in the preliminary bath. It may, therefore, be omitted in cold weather, or when there is no tendency in the film to frill.

Having thoroughly tested the virtue of Mr. Cassebaum's intensifier, I submitted it to a number of practical workers, who highly commended it for its efficacy. I was therefore much surprised at reading in the *British Journal of Photography*, comments upon it anyway but flattering.

The editor severely criticised it as *lacking in agreement between results proposed and obtained, declaring that the preliminary bath as recommended, and the absence of restrainers in the intensifying solution, entirely destroy any possible advantage derivable from the Philadelphia formula.*

This verdict of so eminent an authority in photography, induced me to thoroughly investigate Mr. Cassebaum's formula, to discover the cause of any possible failure.

The result of a great number of trials strengthened my belief, not only in its superiority over the other methods of silver intensification, but confirmed my opinion of the simplicity and uniformity of its action. During the course of my investigations, however, I discovered a modification of the original method, which is acknowledged by Mr. Cassebaum, to be a decided improvement. The modification is in the constitution of the preliminary bath, which is as follows:

Perochloride of Iron . . .	4 grains.
Citric Acid . . .	4 "
Chrome Alum . . .	2 "

To be added to each ounce of water.

The negative is immersed in this solution and kept in constant motion for a minute or two; but not long enough to occasion a bleaching of the film.

On removal, the negative is well washed

and placed in the gallic acid and silver solution, as given in the formula above. It will be found to build up much more rapidly than by the former method, keeping perfectly clear and brilliant, even if allowed to remain a long time in the solution. There seems to be no liability to stain of the film so treated.

After the necessary strength is attained the negative is again washed until all greasiness disappears from the surface. This apparent greasiness is caused by the imperfect assimilation of alcohol and water. Finally, as a precaution for the removal of any uncombined silver, the plate is dipped for a minute or two in hypo, and then washed.

Should a slight opalescent film appear upon the surface on placing the negative in the intensifier, do not regard it with any seriousness. It is due to insufficient washing on removal from the perchloride of iron, and is easily rubbed off with a piece of wet cotton, and will entirely disappear in the hypo.

If the negative is allowed to remain in the perchloride of iron until the film bleaches, the subsequent immersion in the hypo will greatly weaken the image, which has been strengthened by the silver.

It seems that the chloride of iron, acting upon the film, forms a nucleus for the deposit of the silver reduced by the gallic acid; and the intensification is a genuine building up of the image and not a mere staining of the film with an adiactinic color, as is the case with certain other intensifiers. With this modified intensifier I have strengthened negatives of so pale images that mercury was incapable of producing any amelioration.

As the perchloride of iron is in itself a reducer and also a clearer, its preliminary action in intensification will be found of great value in removing any chemical fog upon the negative, which, if suffered to remain during the intensification, would also strengthen along with the image and detract materially from the brilliancy of the result. This clearing action of the perchlorides of iron gives a clearness to the intensified negative, so that it can scarcely be told from a well developed plate.

In making known this modification, I desire it not to be forgotten, that the credit belongs essentially to Mr. Cassebaum for being the first to successfully employ silver and gallic acid as an intensifier for gelatine plates without necessitating the slowing action of acids and other restrainers. I am abundantly gratified in having my modification regarded as an improvement upon his original method.

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### AN AMERICAN METRIC SYSTEM.\*

BY GEORGE S. ST. CLAIR.

THE subject to which I have been requested to call your attention for a few minutes is a very important one—one in which we are all directly interested, individually and collectively. I allude to the much needed reform in the system of weighing and measuring photographic materials.

Many of you, no doubt, wonder why the system which we and our fathers have used for hundreds of years is not good enough. It has served us; why not leave it to our children, as their grandfathers did?

In the dear old days when the gray heads among us were laughing, romping boys, our fathers toiled in the harvest field with the ancient crescent-shaped sickle, cutting down the wheat, a handful at a time. Our homes were heated by a huge open fireplace and lighted by a tallow candle. To-day, sickle, scythe, and wheat cradle are laid aside. The farmer mounts to a comfortable seat on his reaper, speaks to his horses, and away he goes circling around his field, leaving a trail of sheaves already bound to mark his triumphant pathway. At home the fireplace is discarded for a neat and convenient cook stove; the lamp, with its porcelain shade and fringe of sparkling crystal prisms has superseded the tallow dip; and the cheerful whir of the splendid nickel-plated sewing machine greets our ear instead of heavy, long-drawn, irrepressible sigh, so often heaved by our patient, loving mothers, as night after night they sat,

With fingers weary and worn,  
With eyelids heavy and red,

stitching away on father's shirt or baby's dress.

Progress, invention, improvement, are the watchwords of the age in which we live. The man whose spirit is unmoved by the bustle and hurry and change by which he is surrounded, is a drone in the hive, and, like the other drones, will find that when the winter of life comes on him he will be left out in the cold, unnoticed and neglected by the active workers. An old fogy, a relic of a by-gone age and generation, such an one is he who clings to the antiquated system of weighing and measuring bequeathed to us by our fathers and still in use with us to-day. Scarcely less to be deprecated is he who, not noticing the pulsations of the great body politic which encircles him on every hand, insists upon foisting upon us Americans a system defective in itself, and not fully adopted by the people whose learned men conceived it, and worked it out into practical shape nearly a century ago.

That the French metric system is a vast improvement on the old-fashioned system in use when it was given to the world is so apparent, that only an idiot will dispute its being so. Why then has it not been adopted, and how can we help the matter?

As to why it has not been adopted, no man who knows aught of the history of the century he lives in need be in any doubt. The French metric system was the result of a determination on the part of the madmen who ruled over the French people during the terrible revolution which shook France to its centre—who attempted to change everything which had been popular during the reign of tyranny which drove the masses to frenzy. Out of the turmoil and bloodshed which followed the downfall of the ancient French dynasty came the great Napoleon, and his ambition led him to seek for glory for his country at the expense of the humiliation of every other nation of Europe, England probably excepted; and England alone would have fallen before him, as other nations fell, but for her isolated situation, and the wisdom of her alliances. France has been such a firebrand amongst the nations, that anything, however good, which emanates from her is rejected by the masses because it is French. I know there are

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\* Prepared for the Chicago Convention.

amongst us men who will deny this statement, but such a denial in the face of the evidence before us, is simply an idle waste of time and temper.

One of the many changes proposed by the French savants at that time was the metric system of weights and measures; but so tenaciously did the *canaille* cling to their old system, that all the power and influence of Napoleon failed to make the new system popular; and even now, with all the progress of the age to boost it along, there are parts of France in which it is not yet in common use, although the use of the old system is forbidden by law. So apparent was the advantage of the metric system that one after another of the governments of Europe made its use legal; and some adopted it in governmental transactions. Even "perfidious Albion" made it legal, but so great was the popular opposition that nothing more was accomplished. It never was and never will be adopted by the populace of England.

The advocates of the French system as it stands, insist that because it is legal in Germany, Russia, Austria, Italy, England, Norway, Sweden, Holland, Belgium, aye, even far-off Australia, that, therefore, these nations have adopted it. Nothing can possibly be further from the truth. Our own country presents a complete refutation of such a claim. The French metric system was legalized in England in 1864, and in the United States in 1886. Notwithstanding the legality of the system, not a grocer in London or Liverpool, Edinburgh, Glasgow or Dublin, sells flour by the kilogramme, or beer by the litre. From Maine to Oregon, in this country, the old sixteen-ounce pound is the standard of weight, and wine and water are still sold by the gallon.

Having thus shown that while the French metric system is the best system hitherto proposed, the inveterate hatred with which the nation is regarded, has prevented its adoption by the people, although legalized by the governments. Anxiously desiring its adoption in this country, which has thus far ignored its legality and rejected it, I long ago proposed to inaugurate an American metric system which should embrace

all the advantages without the objections to the French system.

As I am neither a professor in a New York college, nor editor of a Chicago newspaper, my plan has been met with sneers and ridicule instead of argument. It seems absurd that an obscure American citizen should dare to propose an improvement on an idea conceived by the joint labors of a score of French scholars; but it seems perfectly plausible to these wiseacres to force the 60,000,000 of American people to adopt a lot of new names for their weights and measures, which neither they nor their children can pronounce, much less comprehend.

Why should our people be required to learn a lot of French terms with Latin and Greek prefixes to give them meaning? Yet such is the demand of those who are blind, because they will not see, and stupid, because they will not understand.

For a hundred years the learned men tried to force the French language on the nations as the grand official language of the world, and they have failed. Now a new idea has arisen, and a German philologist has invented a new universal language, which scientists are trying to master and hope to see adopted, not as a common, every-day language throughout the world, but an international language to be learned by all nations as a medium of official communication. This new language has been christened Volapec, and its grand recommendation is its non-nationality. A large proportion of its words, like its name, are of new and special coinage. They have no other meaning than the one given in Volapec, which is the rock on which the whole superstructure is to be built.

This is precisely the basis I proposed (over three years ago) for an American system of metrical weights and measures. Before publishing it, I explained it to a number of educated men, especially physicians and pharmacists, and every one, without an exception, promptly gave it their approval. The president of a medical college called on me, and congratulated me on the conception of so grand an idea. The editor of a medical journal requested me to give it to his journal, and when it appeared no objections were offered, but many hopes

expressed that the idea might become popular.

In November, 1863, I published a synopsis of my plan in the *St. Louis Photographer*. My idea was to combine *comprehensiveness*, *simplicity*, and originality. This I proposed to accomplish by coining a series of new words of three letters only, one vowel and two consonants, the vowel to be placed between the consonants. Seven such words would be required to represent the idea at present expressed by

Length of Distance; as an Inch, a Mile.

Weight; as an Ounce, a Pound, a Ton.

Capacity, dry; as a Peck, a Chaldron.

Capacity, fluid; as a Pint, a Barrel.

Surface Measure; as a Square Foot, an Acre.

Cubic Measure; as a Cubic Foot, a Cord.

Number; as a Dozen, a Score, a Hundred.

Taking this word of three letters as the root, I propose to consider it as representing the unit one; then increase it to ten, one hundred, and one thousand, by prefixing one of the vowels, A, E, or I, and to reduce it in the same ratio by affixing the vowels O, U, or Y.

Suppose, for illustration, we take the letters Tek as the root; then with prefixes and affixes, it will form seven distinct words, each having a distinct and recognized meaning, and *only that one meaning*. This will be plainly seen by the

#### ILLUSTRATION.

Itek. Etek. Atek. Tek. Teko. Teku. Teky.  
1000 100 10 1  $\frac{1}{10}$   $\frac{1}{100}$   $\frac{1}{1000}$

I used the letters *Yad* in illustrating the idea in the November issue of the *St. Louis Photographer*, which stirred the risibility of a certain Chicago editor, who saw in it the title of an Indian princess. *Yad*, I afterwards learned, is the Scotch name for an old house. Not wishing to offend my sensitive critic, and break my own condition that each root, and all its six derivatives shall be absolutely new, I choose the letters given above. If any one thinks it a simple thing to coin *forty-nine new words*, seven of three letters, and *forty-two* of four letters according to my conditions, let him try it. The conditions are as follows:

Seven new words of three letters each, the

vowel to be placed between the consonants. No two of the seven words to begin or end with the same letter. None of the prefixes or affixes to change the root to a word now in use in the English language.

We have thus got a root and compounds carrying us up to 1000 and down to  $\frac{1}{1000}$ . To raise the number we have but to say such a number or such a fraction, of any given denomination. It seems simple to make this explanation, but one of the objections raised was stated in these words: Well, you have got a thousand (Tek), how are you going to express a higher number? The reply is, this one Itek is equal to a thousand Tek; if you want 10,000 Iteks, say so; and if you want the one-millionth part of a Teky, state just what you want. It is just as easy to ask for twenty-five Eteks, as twenty-five bushels.

By way of illustration, take the words Tek, Gam, Mef, Zan, Dap, Yex, and Nal. Give the vowel sounds as follows:

A, as in far.

E, as in met.

I, as in pin.

O, as in no.

U, as in the diphthong blue.

Y, as in by.

The words have no meaning and are simply used for illustration.

Now suppose we say

Tek, shall mean the measure of length.

Yex, the measure of weight.

Nal, the measure of number.

Dap, surface measure.

Gam, cubic measure.

Mef, dry measure.

Zan, fluid measure.

Can you imagine any nation under the sun whose children or adults could not articulate these sounds just as easily as they can say ha, or bo? As they would represent an idea, but not a nationality, could the same objection be raised against them that the German raised against the French system, "Curse it, it's French, and I hate it for that reason."

One of the critics objects to *yad*, because it is an unmeaning sound. That is the very idea I am advocating, besides, all words, until their meaning is learned, are unmeaning sounds.

We want their metric system. The French system is based upon a good standard, the best yet adopted. While somewhat defective, it is, nevertheless, quite practicable. The great objection is its nationality, and the difficulty of correct pronunciation.

Suppose we follow the examples of Volapec, and first denationalize the nomenclature by coining new terms, and then remove the second objection by making the new word so simple that he who runs may read.

Suppose our Convention to agree upon such a system, and all its members adopt it. Within three months it would be known wherever the English language is spoken, and also throughout France and Germany. Immediately after the close of the Convention the new weight and measure would be thrown on the market for photographic use. The druggists would accept the new departure, and physicians' prescriptions would be written with the new characters, which would be the first letter of each name. A physician's prescription would read something like this:

R.—Castor oil . . . . . Z(ans)  
Milk . . . . . : Az(an)

Mix, etc.,

which would be about the proportion of:

R.—Castor oil . . . . . half an ounce.  
Milk . . . . . half a cupful.

By taking the French gramme as the unit standard, both of weight and measure, as the French system does; a formula given in the French system could be changed into this system instantaneously. Thirty grammes would be 30 yex or 3 ayex, while 300 cubic centimeters would be 300 zans or 3 ezans, and 2000 square centimeters would be 2 idaps.

Ladies and gentlemen, fellow workers in our grand art science, take this matter into consideration. For twenty odd years this French system has been legal in this country, yet we have not adopted it. How long shall we halt between two opinions? Let us either adopt the French system with its hectalitres, its deca-grammes, its square millimeters, and its cubic centimeters, which will send us all, gray beards and bald heads included, to school to learn Greek, Latin,

and French; or else adopt a nomenclature, which, like Volapec, will, if adopted by you, become universal. Rome, once the most powerful of nations, gave us an alphabet which will eventually supercede all others, but her numerals have gone out of use. Arabia is hardly known among the nations, but her ten numerals are now used by every civilized nation, and will continue to be so used until time shall cease to be, and ciphering is no longer needed.

So is it in this case, France has given us a system of weighing and measuring adapted to all the present wants of science, but burdened with an objectionable nationality and nomenclature. You can adopt her system, adapt it to a new nomenclature utterly denationalized, and thereby secure its adoption by the entire civilized world. Will you do it?  
GEORGE S. ST. CLAIR.

### PHOTOCHROMOGRAPHY.

#### ITS PROBABLE EFFECT UPON THE WORK OF THE ARTIST.

ARTS and sciences, as well as history and theology, have their myths and traditions equally with heroes and martyrs. One of the most curious of the legends pertaining to the origins of photography in England is the shadowy story that late in the last century two men of business, a porter and an engineer, each famed, not only for his enterprise and energy but for his inventiveness—the one named Josiah Wedgwood, the other Matthew Boulton—carried out at the works of the latter at Soho, near Birmingham, a series of experiments by which, through the agency of the sun, a camera obscura, and a few chemicals, they were able to produce on divers surfaces of metal, paper, silk, and linen, not only exact fac-similes of engravings and inanimate objects, but portraits of living individuals. It is not at all unlikely that such was the case; but the story assumes its legendary aspects when it is stated that no sooner did reports of the successful sun pictures taken at Birmingham, begin to be bruited about in London than the President and members of the Royal Academy of Arts made haste passionately to entreat the inquiring sages of Soho to suspend the researches in heliography, since, if the process

were perfected and brought into general use, the art of painting in general and that of portrait painting in particular would be inevitably and definitely ruined. What effect these representatious had—if they were made at all—is not known; and extremely dense is the cloud which veils the beginning of sun drawing in this country. Sir Humphrey Davy is believed to have made a few trials of the effect produced by the concentrated rays of the sun on horn silver, the *luna cornea* of the old alchemists. Lord Brougham characteristically strove to cut the Gordian knot of the mystery by informing the world that he himself was the inventor of photography. One thing, however, is certain in connection with the history of this delightful and most useful art. It is upon record that no sooner had the discoveries of Daguerre and of Niepce de St. Victor, and Fox Talbot in England, made photography a palpably practical process, than inquisitive artists began to experiment in the direction of heliochromography, or photography in colors. A precisely analogous ambition was manifested in the earliest days of aërostation. No sooner had the Brothers Montgolfier proved to demonstration the possibility of sending up balloons, than inventive spirits set themselves to work to devise apparatus for steering the balloon. The secret of aerial navigation as yet remains undiscovered, although innumerable statements, more or less doubtful, have been made as to practicability of solving the problem. The case seems at last, to be otherwise with photochromography. Repeated attempts have been made during the last forty years to produce colored sun pictures. They have not been successful; but it has now been publicly announced that heliography in colors has at length become an accomplished fact; that a well known Bond Street sun artist has succeeded in producing images in natural hues, without any aid from the palette or the pencil; and that he has been able to offer for inspection in his studio several portraits possessing the brilliancy of the highly finished miniatures with which they have been compared.

What, in the face of this in one sense alarming statement, will be the attitude of Sir Frederick Leighton, P. R. A., his acade-

micians and associates; of Sir James Linton and the two water color society's; of Mr. James Whistler and the British artists? If brilliantly colored and highly finished miniatures can be produced by photography, it is self-evident that life sized portraits can be executed by the same agency. The most valuable test, however, of the new discovery will be time. If durable pictures in natural tints can be evolved by the aid of the camera and chemicals, it must be obvious that a very serious blow will be dealt to the art of portrait painting in oil and water colors. The princes of the pencil, indeed, might afford to smile at the competition of Phœbus Apollo, with the resources of a chemical laboratory and a clever operator for developing the shafts sent from his silver bow. Already we know from the pictures at which we peep in a camera, how nature paints. Her foregrounds are very crisp; her finish microscopic. Her extreme distances—as they have been apparent to the visitors to the historic camera obscura at Brighton—are apt to be somewhat vague and "woolly." Her color is simply and obviously natural, and it cannot be anything else. Thus were the well known Bond Street photographer to develop the colored portrait of a lady or gentleman in the present merry month of May it might be a graphic portrait, and a faithful and an interesting portrait, but it would scarcely be a pleasing one. Chromatically, perhaps, it might more nearly resemble an "arrangement" in a fog, or a "symphony" in Scotch mist, or a "nocturne" in what Lady Morgan used to call "dun-duckety-mud color." Now, the ideas of color and the executive capacity of such masters in portraiture as Millais, Watts, Herkomer, Gregory, John Collier, and Frank Holl, all vary, but they are all rich and harmonious. Nature, too, is necessarily always harmony, but she is often extremely, although consistently, dull and monotonous even to downright ugliness. As to the possibility of reproducing in a photograph the colors of nature, that, we should say is scarcely open to doubt. In 1848, the French savant, Becquerel, succeeded in obtaining on a silver plate the image of the seven colors of the solar spectrum; but these hues vanished

under the influence of diffused daylight. Niepce managed, chiefly through the aid of salts of uranium, to obtain photographic pictures respectively in blue, red, and green; but these tinted views soon dissolved. "Will it wash?" asked her deepest diapason, the majestic Sarah Siddons, of the trembling draper's assistant who was submitting some colored fabric to her notice. "Will it wash?" is a question of immense importance in all arts which have any connection with chemistry. Some years before the two well known and beautiful colors mauve and magenta became popular, two inventive individuals persuaded themselves that they had discovered a durable violet and a permanent crimson. They went down to Manchester duly supplied with rolls of textile fabrics, dyed in the hues which they had prepared, and submitted them to an eminent firm of calico printers. "Come again in three days' time," said the senior partner. "If the colors stand theres millions in it." At the expiration of the appointed interval they renewed their visit, but they got no further than the yard leading to the counting house, from which was audible the irate voice of the senior partner, shouting to his doorkeeper, "John, tell 'em that their infernal colors wont stand, and kick 'em into the street." It was the old story of the Roman Emperor and the tight rope dancer. The gymnast, for awhile, danced with such surprising dexterity that the delighted Cæsar sent him a crystal goblet filled with pieces of gold; but in the course of the next "pas" the foot of the unlucky artist slipped and he fell, whereupon disgusted Cæsar ordered him to be forthwith hanged.

If the naturally colored portraits of which the perfected execution has been proclaimed will "wash"—that is to say, if their permanency can be proved by time—it is clear that ere long little short of a revolution must be expected, not only in portrait painting, but in many other important branches of art. Already photography has wholly slain the elegant, the refined, the sympathetic art of miniature painting on ivory. There is no room for a Mrs. Robinson, a Mrs. Mee, a Sir William Ross. The last of the great English miniaturists was the elder Richmond, who, during his long and dis-

tinguished career, painted between 3000 and 4000 delightfully brilliant and highly finished portraits. Photography, however, was in the end too strong for this cultured and facile practitioner, and he was fain at last to paint large pictures. Photography has been the death of lithography, in its monochromatic and chalk phase, at least, and if photography in colors is to become a universally spread art, chromo-lithography which of recent years has experienced a curious revival, must once more collapse. Draughtsmanship on wood is fading to extinction. At present the artist's drawings are photographed on to the sensitive surface of the block. Electricity and photography between them are playing what is popularly known as "old gooseberry" with wood engraving, while chalcography itself is being seriously menaced by the process known as photogravure. There is happily one morsel of flattering union which the threatened portrait and landscape painters may lay to their souls. About twenty years since all Paris was talking of a new process called "photo-sculpture." The person whose portrait was to be sculpted was simultaneously photographed from twenty-four different points of view, and the photographic sculptor followed with a pentograph the outlines of the photograph and transferred them to a block of clay on a revolving pedestal. An exactly accurate model was thus in a surprisingly short space of time produced; and for awhile photo-sculpture, and its ingenious inventor, M. Willems, enjoyed extended popularity. The direst apprehension prevailed among the professional sculptors of France; but somehow these practitioners of the glyptic art took little, if any, harm by the introduction of photo-sculpture. Its acceptance was immediate and general, but somehow it failed to "wash," and it soon quietly faded away from public remembrance. Photochromatics may or may not come successfully to the front; still the portrait or landscape should not be in a hurry to despair. There are qualities of feeling and imagination in their craft which no mechanical or chemical process, however skilful and elaborate it may be, can adequately replace.—*London Telegraph.*

## THE APPLICATIONS OF PHOTOGRAPHY IN ASTRONOMY.

BY DAVID GILL, LL.D., F.R.S.,

(Continued from page 494.)

*Her Majesty's Astronomer at the Cape of Good Hope.*

THE reasons for the adoption of this plan were the following :

The celebrated astronomer Argelander charted the heavens on this scale from the North Pole to the Equator, and the work has recently been extended 20° south of the equator by Schonfeld, the pupil and successor to Argelander.

Argelander's *Durchmusterung*, as it is called, has furnished, ever since the date of its publication, the nomenclature of all the fainter stars employed in the daily operations of astronomy; it has furnished the working catalogues which are essential for the more exact determination of the places of all these stars; it has given us the first accurate data for determining the distribution of the stars according to magnitude and apparent position in the heavens, and and is the first solid existing basis for founding any theory as to the constitution of the stellar universe. To complete the *Durchmusterung* for the remaining portion of the heavens was, therefore, the most pressing need of modern astronomy. I commenced the work in 1885, by the aid of photography. I hope in two or three years, if I have the honor of lecturing again in this theatre, I shall then be able to tell you that the work in question is finished.

I should here explain that mere pictures of the stars are of comparatively little value or rather of about the same value to an astronomer, as a series of charts of parts of the world would be to a sailor if there were no lines of latitude or longitude marked upon them.

The everyday useful part of the *Durchmusterung* is the catalogue giving the positions and magnitude of all the stars. That work is rapidly advancing in the hands of my able and enthusiastic friend, Professor Kapteyn, of Groningen, who, with the aid of three assistants, has undertaken to devote five or six years of his life to the

measurement of the Cape photographs and the computation of the results.

When this has been done, as I venture to think it will be within five years, astronomers will be in possession of that preliminary survey of the whole heavens which is necessary for the more refined and elaborate researches which must follow as results of the Paris Congress.

But to return to the work that was meanwhile being done in Paris by the brothers Paul and Prosper Henry.

These astronomers had been engaged since 1871 in the construction of charts of the Ecliptic by the older processes of observation, but when they reached that portion of the heavens where the Milk way crosses the Ecliptic, the number of stars became so overwhelming, that the task of charting seemed almost too great for human patience and skill. But, fortunately, the time had come when dry-plate photography could be called into aid, and this aid was in the hands of men singularly competent to develop such an opportunity to the fullest extent. The brothers Henry had long aspired to be not only distinguished practical astronomers, but, following the traditions of Huyghens and the Herschels, they desired also to be the artists of their own optical means. Bound together by strong brotherly affection and common tastes, gifted alike with practical talents of a high order, and with an energy and determination of character that permit no obstacle to success, these men, thus happily united, have devoted the spare hours of their busy astronomical duties at the Paris Observatory, first to the study of optics, and afterward to the grinding and polishing of lenses and specula, which have won for them a now world-wide reputation as opticians of the highest rank.

I had the pleasure a few weeks ago of visiting the modest workshop attached to their house at Montrouge, and I shall not soon forget that visit, nor the many lessons, moral as well as practical, which I learned.

Every detail of their process of working has been evolved by themselves; they employ no assistant, and their every appliance is simple and practical, in a degree which I can only compare with the simple and practical character of the men who designed it.



Such were the men above all others to develop the application of photography to the charting of the heavens. They had high appreciation of the work which they were about to undertake, they had the fullest knowledge of the requirements of the case, and they had the practical skill which enabled them to perfect the necessary apparatus. Their first attempts were made with a telescope of six inches aperture (the object-glass being specially ground for photographic work), and the tube was temporarily adapted to an existing equatorial stand.

With an exposure of forty-five minutes, pictures of stars were obtained to the 12th magnitude, in which the star disks were quite round and sharply defined.

Fully appreciating the beauty of this result, and seeing its importance, Admiral Mouchez boldly faced many administrative difficulties, and accepted without delay the proposals of the brothers Henry to construct an object-glass of thirteen inches aperture, and about eleven feet focal length, as well as the offer of M. Gautier to mount the same on a suitable stand. The new instrument was mounted in May, 1885. A photograph of the complete instrument is now on the screen.

Both from an optical as well as a mechanical point of view, the new instrument was admirably adapted for its intended work, and the results obtained by the brothers Henry, and rapidly published circular by Admiral Mouchez, at once astonished and delighted the astronomical world.

I now show a few of the more remarkable of these star pictures on the screen.

After such results as these there was no longer room for doubt or delay. The exquisite precision of these pictures, the sharpness and roundness of the images of the stars, and the results of actual measurement on the plates, proved that all necessary accuracy had been attained.

The means of rapidly obtaining the data for an accurate survey of the heavens on a very large scale were now within the reach of astronomers, and the time for decisive action had arrived.

The work, however, was too extensive to be undertaken at a single observatory, or even by a single country, and it was agreed

on all hands that international coöperation was essential for its execution in a sufficiently short space of time.

I need not enter into the details of preliminary consultation or correspondence, but at last a time was fixed, and invitations were issued by Admiral Mouchez, Director of the Paris Observatory, under the auspices of the Paris Academy of Sciences, for an International Congress of Astronomers to be held at Paris.

A preliminary Committee having arranged the general order of business, the Congress was opened on the 16th of April, and its thoroughly representative character will be understood from the following statement of the nationalities of the members present.

France . . . . .	20
England and Colonies . . . . .	8
Germany . . . . .	6
Russia . . . . .	3
Holland . . . . .	3
U. S. America . . . . .	3
Austria . . . . .	2
Sweden . . . . .	2
Denmark . . . . .	2
Belgium . . . . .	1
Italy . . . . .	1
Spain . . . . .	1
Switzerland . . . . .	1
Portugal . . . . .	1
Brazil . . . . .	1
Argentine Republic . . . . .	1

Before the Conference, a great many people, I will not say astronomers, held that the chief object was to photograph as many stars as possible, and simply preserve these plates or issue photographic copies of them, so that astronomers of the future, by merely comparing one of these originals or copies with a similar photograph of the same part of the sky taken fifty or a hundred years hence, would find out what stars had changed in position or magnitude, or whether any new star had appeared.

There is no doubt this was the view of the popular writers—it is very easily understood, and it appeals very directly to the imagination. Such a project alone would no doubt have had great importance, and would probably in the future have brought to light a great many interesting isolated facts.

But for the broader and more refined purposes of astronomy, for the discussion of such great questions as the motion of the solar system in space, the common movement of large groups of stars, the accurate determination of procession, and the general refinement of astronomy of precision, these mere pictures would have no value.

It was essential for these larger and more permanently important ends that all data should be provided for the most refined determination of the *absolute* position of any star upon any plate. This view was endorsed by the Congress.

The objects of the survey of the heavens to be carried out were defined ultimately thus: "To make a photographic chart of the sky for the present epoch, and to obtain the data for determining the positions and magnitudes of all the stars to the 14th magnitude," as that magnitude is at present defined in France.

At present there are no exact determinations of stellar magnitude to that order of faintness, and the considerations which really guided the Conference were, that stars which are called 14th magnitude are photographed by the Henrys with an exposure of about fifteen minutes of time. With such an exposure the time required for the work contemplated by the Congress would not be too great, but to demand long exposures would lead to the loss of many plates by interruptions from clouds, etc., and would unduly prolong the time required for completion of the whole work. As it is, the number of stars photographed to 14th magnitude will number 20 millions.

It was seriously urged that stars to the 15th or even 16th magnitude and higher should be photographed, but it was felt that there was real danger of failure in an attempt to do too much.

It no doubt produces a strong effect on the imagination to be told that astronomers are to be engaged on making charts of the sky which will contain 60 to 100 millions of stars, or photographing stars on their plates which cannot be seen at all in the most powerful telescopes. There is thus a strong temptation to yield to this demand for sensation, to produce a few astonishing plates with the loss of precious time, and to

sacrifice the real progress of astronomy to the love of the marvellous. Besides, what are you to do with pictures of 100 millions of stars when you have got them? What would be the use of pictures of all these stars, unless at some future time a sufficient number of astronomers were to arise to compare similar photographs, taken, say, one hundred years hence, with the photographs taken in our day? I am happy to think that the number of men who devote themselves to the pursuit of astronomy is on the increase, but I have no desire that the number of men in Great Britain, who occupy themselves exclusively with astronomy, will ever correspond with that in the floating island of Laputa, as described by Dean Swift, where all the men were exclusively occupied with astronomy, and had to be flapped on the head with little bladders containing parched peas to arouse them from their abstract occupations. And yet, unless something of this sort happens, I see no adequate prospect of the utilization of pictures of 100 millions of stars.

The Congress, therefore, very wisely limited their chart plates to the 14th magnitude. But, as was well said by M. Bouquet de la Grye, it was not necessary to summon fifty or sixty astronomers to a Congress to arrange for taking mere photographs of stars—a number of photographers provided with instruments like the Henrys could have done all that without a Congress. It was very strongly felt that the true *raison d'être* of the Conference was to secure astronomical data, precise and exact as the operations of astronomers should be.

Accordingly, they resolved that

"In addition to the duplicate series of plates giving all the stars of the 14th magnitude, there should be a series of plates of shorter exposures to insure a greater accuracy in the micrometric measurement of the standard stars, and to render the construction of a catalogue possible. The plates intended for the formation of the catalogue shall contain all the stars to the 11th magnitude inclusive." That is to say, it was determined to catalogue the absolute places of stars to the 11th magnitude.

But no photographic plate gives us any

information about the absolute places of stars, though it gives the means to determine the relative positions of the stars on the limited area of each plate; you must trust to the old-fashioned meridian observations to determine the absolute places of the brighter stars on each plate, and then measure the position of the fainter stars relative to these standard stars.

Now if a plate is exposed long enough to get satisfactory pictures of stars of the 14th magnitude, the images of the standard stars of the 7th, 8th, and 9th magnitudes will not have the highest perfection, and, consequently, the places of the fainter stars cannot be measured relative to the ill-defined standard stars with the highest precision.

This will be evident if we examine actual photographs. One illustrates a short exposure, the other a long exposure. The short exposure gives sharp definition of the brighter stars, the long exposure brings into view a much greater number of stars, but the sharp definition of the brighter stars is completely lost. Therefore, if we wish to have determinations of absolute positions, we cannot have long exposures.

The meaning of the series of plates of short exposure, and showing stars only to the 11th magnitude, is thus explained: Of stars to the 11th magnitude there are about  $1\frac{1}{2}$  millions in the sky, and a catalogue containing all these stars may be considered complete for the practical purposes of astronomy, because that magnitude is the faintest which can be measured with accuracy in the larger class of equatorials usually employed in working observatories.

I need not enter into detail about the technical means which are to be taken for eliminating the various sources of error, such as contraction of the photographic film in course of development and so forth. All these points have been considered by the Congress, or put into the hands of specialists when it appeared that any particular point required further special study, and they are too technical to be entered upon here. The chart of stars to the 14th magnitude will be of importance for many purposes, such as the search for minor planets, and the trans-Neptunian planet, for variable stars, and for data as to the law of distribution of stars of

the higher order of magnitude. But I do not hesitate to say that the work which astronomers of future generations will be most grateful for, and which will most powerfully conduce to the progress of astronomy, will not be the chart, but the catalogue.

And now, ladies and gentlemen, I have dragged you through what I fear has so far been a weary account, to bring you to an apparently very uninteresting conclusion.

Catalogues and figures are not matters of much popular interest, and yet from such uninviting material has been built up the fair structure of the exact astronomy of the present day; and out of such materials have been evolved the facts which appeal so strongly to the minds of men, and most strongly so, because men know that the conclusions rest not on mere imaginings alone, but on solid facts and figures also.

But now as to the practical execution of this useful work. After all the preliminary details of the operations have been fully discussed—when the instruments have been designed and made, and the mode of working and the methods of measurement and reduction have been devised, and practical execution of the work becomes one long round of routine labor, requiring skilled and careful superintendence, it is true, but still routine work of a very trying character.

Such work never has been, and never will be, the occupation of the amateur or single-handed astronomer. Essential as such work is to the progress of astronomy, it can only be executed at regular Government establishments, and, therefore, the conclusions of the Conference will have to be submitted to the various governments, and the necessary votes of money must be secured. France has already definitely sanctioned the funds for four photographic telescopes of the kind which the Conference has decided to adopt for the work. And we cannot doubt that the modest claims which will be made on England's treasury for her share in this great work will be liberally responded to. But there are other applications of photography to astronomy which have a daily growing importance. It was desirable that the Con-

ference should recognize this work, and establish relations with those engaged upon it. Accordingly, the following resolution was passed:

"The Congress expresses the desirability of there being a special Committee which shall occupy itself with the applications of photography to astronomy, other than the construction of the chart. It recognizes the importance of these applications and the relations which it is desirable to establish between different kinds of work. The Congress request Messrs. Common and Janssen to undertake the realization of this proposition."

At first sight this may appear a somewhat barren resolution—but, indeed, it is not so.

It must be remembered that the Congress was convened for the purpose of discussing a special object; it had arrived at definite conclusions and recommendations in connection with that object, and it was felt that to go beyond that object might imperil the adoption of its recommendations by the various Governments.

But in the hands of men like Common and Janssen the resolution of the Conference is not likely to be a barren one, indeed, it is certain that it will not be so, for they are already taking steps to unite fellow-workers in this field.

Their Committee will associate itself with those who are engaged upon the charts, and will follow up in detail and with special instruments and methods the subjects of interest which from time to time will be encountered by the routine workers.

*(To be continued.)*

## CHARACTERISTICS OF DRY PLATES.

BY SODIUM.

It is said that there is even a limit to the power of Omnipotence.

To those who have been educated into the belief that "there is nothing impossible" to man, that there is nothing good or great which persistent and well directed effort will not accomplish, this saying might appear to require qualification.

To others who know the insignificance of all human effort when compared with the

stupendous energies of Nature, the saying will appear to be, perhaps, blasphemous. However it may be accepted by the one or the other, the statement itself might well excite within each one of us a desire to stop and think of it, and inquire what may be observed in nature that would give rise to such a thought. Is it because we observe that natural laws are most logically and consequent, and that there is nothing erratic in all her wide domain, that we dare to say that anything is impossible to nature or to nature's God. Or is it that while we contemplate the infinite variety that crowds upon our vision at morning, noon, or at night, that even two blades of grass were never seen to be alike by day, nor two clouds of the same shape by day or night, that we shall say, because such things are not, Omnipotence cannot produce them.

However this may strike the reverent or the irreverent mind, the fact remains that in nature infinite variety is the rule. And that among the works of man the closest study of detail and the minutest care in construction, will fail to produce any two things of the same kind exactly alike.

Let us carry this inquiry into the domains of photography, and see what conditions obtain in the wonderful art-science in which we are so particularly interested. There are many photographers who act as if they thought that all the different makes of dry plates are alike, but how far from the truth this may be should be plain to any person who, having the ability to develop a dry plate, had ever used two or more of the different brands. The universal use of the dry plate, and the wonderful advance in photographic art consequent on that use, renders an intimate knowledge of the qualities of the various makes of dry plates, and a no less intimate knowledge of the best methods for their handling and treatment in exposure and development of the very first importance to every photographer. This knowledge comes to the observing operator in time, but the duration of that time will depend largely on the amount and variety of photographic work he will be called on to do, and to his capacity for correctly deducing from the various phenomena which comes under his daily observation in the use

of dry plates; the peculiar qualities or characteristics of each particular make or "brand" of plates, and the more constant laws which govern their development when properly exposed, as well as the various modifications of development which shall make these peculiar qualities of plates subservient to his will and judgment in the production of a high grade of work.

The possession of this knowledge must be of inestimable value to every practical photographer. And if so, then it would be incumbent on those whose opportunities for acquiring this knowledge by practical study are limited, to supplement what they have learned by availing themselves of the experience of those more favorably situated.

The photographic journals of the day are filled with accounts of the experiments of men who have ample time to study, and who are ever ready to promote the advancement of others by freely giving them the fruit of their labors—but, unfortunately, the very individuals who would be most benefited by such instruction are the least likely to avail themselves of it. This is a fact greatly to be deplored, and it is equally to be regretted that something cannot be done to awaken in the minds of a great number of practical photographic workers a keener inquiry into the mysteries of the profession, and a desire for a more extended acquaintance with what is going on in the photographic world, which would prompt them to take and carefully peruse not one, but many of the useful journals which are published in the interest of our art.

The individual characteristics of the several "brands" of dry plates alone would, if fully inquired into and set forth, afford interesting, as well as instructive reading matter for all, at this stage of our progress in their use, and acquaintance with their peculiarities.

The dissemination of information on this particular subject, however, has fallen into the hands of a more active agency even than the journal, I mean the demonstrator, to whom is due the credit of having brought the dry plate into universal use, and to whose active intelligence and untiring industry may be attributed the rapid advancement in our art, acknowledged to have been achieved during the last few years.

The demonstrator is now a welcome visitor to almost every photographic studio in our country, and properly so, for he always has some valuable information to impart. Of course, he is full of all valuable knowledge concerning his own plate. If he is a "Cramer man" he will enlarge on the great advantages of such a rapid plate, and how useful the yellow prussiate is in helping to coax a little additional strength or intensity into it; and he will tell you with charming candor, that while it is slow in the fixing solution, yet that is an operation that does not need to be hastened and, therefore, the fact is not detrimental to the plate. And, although it takes twice as much pyro to develop as any other plate, observe what charmingly artistic qualities you get, sometimes.

When, however, it is a "Seed man" who visits the gallery, he very pleasantly informs you that his plate is so easy to work, and that it is a very quick plate, too, in fact, quick enough for any purpose, but it is so easy to work; why, it develops in a very short time, and fixes also very quickly, in fact anybody can use it, it is so easy to work. And then he will sit you and try to make you a good negative!

If may not be long after this when a big, burly, but fine looking man comes in, and is anxious to sell you some Eagle plates. Why, the Eagle plate is made by that father of dry plates in this country, and who ought to make a better plate than Norden; it was he who made the emulsion for the famous Cramer & Norden plate, and from which same formula the Cramer plate is now made. And the Norden plate, and the St. Louis plate, were they not all fine, and is not the Eagle plate the best of all? Come, now, I will sell you a gross, between you and I, for such a price. Have a cigar?

Then there is another demonstrator, a rather thick-set man, of light complexion, he will come in and frankly tell you that he is *the* demonstrator for the Stanley dry plate, and very politely ask you if he may talk dry plates to you. Well, he looks as if he knew something, and he tells you his name, and you recollect the name as of some one who had made a reputation in photography, and you invite him to take a seat.

The first thing you are asked is "what is your favorite plate? what are you using?" Then he goes on to tell you that the Stanley plate is the most useful plate to be had, for three reasons: The first, and most important, is that it holds all its developed intensity or strength in the fixing solution, in the same manner and to the same degree as a collodion plate would. In the second place, all emulsions are of the same rapidity and quality. In the third place, the plate is coated by a machine, and in such a manner that the coatings are absolutely even and uniform, and that these three qualities which are peculiar to the Stanley plate alone, render it the most reliable plate of all the list, and by the use of which it is possible to make a more even and regular grade of negatives than by any other. And then, to sum up its perfection, he will say that while it is the most rapid of all the easy working plates, developing and fixing as quickly as the Seed, it will give you the higher artistic qualities claimed for the Cramer; and, you are informed that he is prepared to show by actual demonstration that the Stanley plate possesses all these qualities and perfections.

It will be understood, of course, that every demonstrator would make you believe, if he could, that his plate is the best; not only that, but each one possesses the best developer, and as the future improvement of dry plate work lies in the development, this subject becomes of increasing importance.

It would not be of advantage to give the various formulæ that are advocated by the different plate makers. Suffice it to say that the simplest form of alkaline pyro development has the more general endorsement of photographic experts; and of all the alkalies, soda seems to give the most satisfaction.

There are two principal methods of preparing the soda developer, the one is made up in bulk, the other is concentrated of the two methods; an example is given:

No. 1.—THE STANLEY FORMULA.

Water (ice or distilled)	. . . . .	80 ounces.
Sulphuric Acid, c.p.	. . . . .	10 drops.
Pyro . . . . .	. . . . .	1 ounce.
Water . . . . .	. . . . .	80 ounces.
Sulphite of Soda, crystals,	6 "	
Sal Soda, crystals . . . . .	6 "	

Use equal parts without additional water.

No. 2.—CONCENTRATED SODA DEVELOPER.

Water (distilled)	. . . . .	5 ounces.
Sulphuric Acid, c. p.	. . . . .	5 drops.
Pyro . . . . .	. . . . .	1 ounce.
Saturated Solution, Sal Soda	. . . . .	6 ounces.
Saturated Solution, Sulphite of Soda . . . . .	6 "	

In 12 ounce bottle.

To use for 8 x 10 plate, or lesser:

No. 1.— $\frac{1}{2}$  drachm.

No. 2.—1 "

Water, 3 ounces.

MR. LANDY'S PRIZE PICTURE.

SINCE so much interest has been taken in Mr. Landy's already famed picture, "Man Know Thy Destiny," awarded the Blair Cup, at Chicago, and a prize at the more recent Exhibition at Toronto, we venture to describe it a little more in detail.

It is 17 x 21 inches in size, trimmed, and is a plain silver print, mounted on an India tint, and in the matter of technique is an exquisite example of plain photography. The subject is an aged, long-bearded monk, seated at a table on which is a brazier and a crucifix, with "the book" between. The index finger of the right hand is placed upon an illuminated line of the old-time volume, which reads, "*Man Know Thy Destiny.*" The lines about the eye and the deeply-furrowed brow indicate that the venerable subject is thoughtfully scanning the winged words, and yet he shows no fear, for his other hand, falling in splendid line, rests upon a skull placed upon his knee. The composition is a very fine one indeed. It has dozens of added charms attributable to the carefully arranged folds of the garment; the soft falling backward from the brow of the cowl; the cords falling from the waist broken by several knots, the sandaled feet and the natural attitude of the whole figure. We shall go no further. The aged sire has been caught yielding to the custom of the present dispensation, and come to the studio to be perpetuated for posterity. The accessories there have been used to make him much more attractive, in a sense, than he is in his cell, and rightly so. It is Mr. Landy's "greatest picture," and he must work hard if he retains the Blair Cup another year, while those who try to win it from him, will have a contest

worthy of their lenses. We are glad to say, as seen by advertisement, that Mr. Landy has arranged to dispose of copies of his superb work. We shall be glad to select prints for our subscribers, at \$5 each.

And what is contrary to our usual plan, we have selected such as are admitted *not* to be the most artistic productions of Mr. N. Sarony, who, though permitting them to pass his camera for various reasons, is will-



### OUR PICTURE.

By permission of the veteran and distinguished photographer who supplied us with the originals, we are enabled to present a mosaics made up of some interesting studies.

ing we should use them to illustrate a few suggestions we desire to make on the subject of *lines* and *light*.

If our readers will refer to our review of some of the pictures at the Chicago Exposition, page 533, they will recall what we

said concerning the various methods adopted by "individual" photographers for securing what seemed artistic according to their ideas, and find our remarks there useful now, for we have placed together here nine

our suggestions.—In the matter of *lines* compare the awkward, heavy pose of the first picture, Miss Ada Rehan, the "shrew" of "our picture" of August 20th, with that of the lady with the parasol on the right.



pictures that fairly illustrate what we said, and somewhat more. There are a hundred lessons to be learned from this small collection. They will come to all who have "artistic sight" even before we begin to make

Again, refer to the strange conglomeration of lines supplied by the central figure of the top row and compare them with those of the standing figure below. Standing figures are not always gracefully posed, however,



and the ladies are not always made to present the best lines. Witness the "tea-pot" position of the lady in the plaid dress and compare it with the more graceful attitude of the gentleman who balances her on the

would award the prize if you were a judge. The ninth portrait is that of Miss Mary Anderson, which, on account of the sweet simplicity of the pose, the careful lighting and charming technique, is the gem of the



left. We need not go further—you see that both could be improved in a dozen different arrangements of the hands.

For the study of lighting methods we present on the lower row two portraits of Mr. Kyrle Bellew. Refer again to page 535 and then send us your vote as to which you

lot. It embodies the good points of all the others, as near as can be.

By the kindness of the Moss Engraving Co. we are able to use as further illustrations the three very excellent Mosstypes which accompany this paper. The first is of Her Majesty Queen Victoria, and it is

full of merit as to lighting, and not disagreeable as to the many unusual lines supplied by her royal regalia. The second subject, of a young Miss offered the photographer a chance to secure some choice lights in his picture, without splashing it over as is done with the first picture of Mr. Bellew. While the last is another charming picture of Miss Anderson, splendidly managed as to line and light. It is a great thing to have a process of reproduction with the power possessed by the *Mosstyp* of securing all the delicate charms of the negative with freedom from hardness and every line preserved.

We leave our picture gallery now to the care of those who will be interested enough to profit by it.

### THE WORLD'S PHOTOGRAPHY FOCUSSED.

AN immense photograph, said to be one of the largest in the world, has been taken of the United States Treasury building at Washington. It measures seven feet by four, and is to be presented to ex-Secretary of the Treasury Daniel E. Manning.

**CONVERSAZIONE.**—The Exhibition of the Photographic Society of Great Britain will be inaugurated by a *Conversazione*, open to Members and their friends at 8 P.M., on Saturday evening, the 1st of October. The Exhibition will remain open daily (Sundays excepted), from Monday, October 3d, until Monday, November 14th.

**PHOTOGRAPHIC SOCIETY OF INDIA.**—First annual exhibition, 1888. 1. The Exhibition will be opened in January for a period of about three weeks.

2. Medals will be awarded by the judges to be appointed by the Society.

3. Photographs need not be framed but they must be mounted, and in the hands of the Secretaries before January 1st.

4. Carriage on exhibits must be pre-paid and full instructions given as to return or sale.

5. Photographs to which medals are awarded will become the property of the Society, and the Society reserves the right of ordering further copies to be printed for

distribution among members before a medal is despatched. The extra copies ordered will be paid for at fair rates.

6. The following medals will be open for competition:

*Class 1.* Open to the world.

His Excellency the Viceroy of India's own special Medal and the Society's Gold Medal for the best photograph in the Exhibition.

A Silver Medal will be held at the disposal of the judges.

*Class 2.*—Open to the amateurs of India. Silver Medal for best photograph in the Exhibition.

Silver Medal for best set of not less than four photos.

A Silver Medal to be at the disposal of the judges.

7. All Exhibits to be forwarded to the Secretaries Photographic Society of India, 8 Clive St., Calcutta.

At the Liverpool Amateur Society the question of the preservation of the solution of pyrogallic acid was discussed. The solution containing sulphite of soda may be kept for a long time without any notable change, provided that the sulphite of soda used is not alkaline, which happens sometimes owing to the traces of carbonate of soda which it contains.

**PLATINUM.**—Mr. W. Cox has made some excellent prints on platinum paper five months old. He obtained prints as good as those made with oxalate, by making use of a cold solution of carbonate of soda in crystals at 20 per cent. The development lasts ten seconds.

R. G. CONDON, of Friendship, Me., is now at Portland on board a novel craft which he has built for cruising along the coast and photographing points of interest. A Maine paper describes it as a catamaran with two long narrow hulls carrying a boat between them, which contains a roomy cabin. In this Mr. Condon is to fit up a dark room for his photography. He built the boat himself doing all except the iron work and rigging.

## PRACTICAL POINTS FROM THE STUDIOS.

**MARKING PLATES.**—Mr. Londe says that it is a very bad plan to stick numbers on the plates to be developed. The best method, in his opinion, is to write these numbers with a lead pencil at the bottom of the plate and directly on the gelatine film. These indications resist all the washings.

**ON THE PHOTOGRAPHIC REPRODUCTION OF MANUSCRIPTS.**—Much has been said recently of the advantages that photography offers to authors and editors in regard to the reproduction of manuscripts. The loss of manuscripts may prove a great calamity, affecting the whole world; consequently those that have a real importance are generally copied. It is this thankless and heavy task that photography may save, and this in a very economical manner. The manuscript may be reproduced on a small scale to be enlarged afterward if necessary. In this way an ordinary volume of about 350 pages can be reproduced in the form of a manuscript, we are assured, on a half-dozen plates. Here is an idea that should be spread among writers and editors.

*The Photographers' World* for May reached 4678 copies.

**STRENGTHENING THE NEGATIVE.**—(Translated for THE PHILADELPHIA PHOTOGRAPHER from *Amateur Photographer*.) Alfred Stieglitz, of New York, gave, in a previous number of this journal, a good direction for strengthening. The process is very simple, and yet it requires great attention, and the plates could be easily spoiled. The following process is still more simple, I took it from the *Deutschen Photographen Zeitung*, No. 52, 1886.

The negative is allowed to dry quickly (after the washing) near a hot stove. If, by this means, the details do not appear strong enough, the plates can be laid in the water once more, and then allowed to dry quickly again. The difference before and after the process is striking, the negatives are very strong, and yet remain soft.

I will take this opportunity of calling the attention of amateurs to the Monckhoven-Belitski process for the quick removal of

fixing soda from the negatives. The plates should be bathed, after the fixing and brief washing, in a solution of unterchloringsaurem (subchlorate?) of zinc (or Javelle water could be used) and then rinsed off a little. The receipt is as follows:

Twenty grains chloride of lime (chlor-kalk) rubbed in a porcelain dish with sufficient water, and the milky fluid poured into a one-liter bottle. To this is added forty grains zinc vitriol dissolved in 100 cc m. water, shaken well, and the bottle filled up with water. Let this stand two days in the dark, then pour off the clear part and keep it in a dark place in well-corked bottles. In using it, one part of the solution should be mixed with five to ten parts water, and the negative laid in it; in two minutes every trace of fixing soda is removed. After a brief rinsing the process is ended. (*D. Phot. Kal.* 87, page 108.)

By this process, it is possible to obtain soft copies. On the 14th of May we had a great deluge here; my garden was under water, and presented a rare and beautiful picture. I took pictures at six o'clock in the morning, upon erythrosin-silver bathed plates, developed, fixed, bathed in subchloride of zinc, then alcohol to remove the dye; the negatives were dry in about an hour, printed upon gelatine emulsion paper, gilded in the tone-fixing bath, washed, drawn upon ferrotype plates, dried in the sun, and at three o'clock in the afternoon I produced copies of three different pictures pasted upon a cartoon, and they were exhibited in the show-window of an artists' establishment in this city! The negatives have remained unchanged and show no trace of soda.—DR. OTTO JUST, Zittau.

**RECEIPTS FOR COLOR-SENSITIVE PLATES.**—(Translated from *Photographische Mittheilungen*.) Prof. Vogel recommends (1) for reproduction of colored objects (portraits, artists' materials, and all objects which show much red), further pictures in low sun with yellow curtains, the following Azalin bath:

Azalin . . . . .	20 cc.m.
Water . . . . .	80 "
Ammon. . . . .	2 "

Bathe a minute, and dry. Expose through

aurantia disk (covered with aurantia colloidion with three peremille aurantia) three or four times so long as wet. Develop as usual. These plates can be kept in good emulsion eight weeks.

(2) For landscapes with much green and blue (trees and fields, water, clouds, smoke in the distance) the following erythrosin-silver bath:

Erythrosin Solution in Water	
1:1000 . . . . .	50 cc.m.
Silver Solution . . . . .	50 "
Water . . . . .	100 to 300.
Ammon . . . . .	2 to 3.

Filter. The plates should be bathed a minute then dried.

The plates saved can be kept as long as seven days, they are twice as sensitive as the ordinary ones and, they also, without yellow disk, give excellent results. In red sensitiveness, however, they are inferior to the azalin plates.

In the previous number of this journal, E. Vogel spoke of bought azalin plates which, though four or five times less sensitive than azalin-bathed plates, could, by bathing in diluted ammonia, be made just as sensitive as these.

TECHNICAL USE OF MAGNESIUM.—Dr. Meydenbauer, in *Photographisches Wochenblatt*, says that the best result is obtained by using magnesium in powder, mixed with either chlorate of potash or saltpetre.

Magnesium in powder . . . . .	100 parts.
Saltpetre . . . . .	166.6 "

Or,

Chlorate of Potash . . . . .	168.4 "
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These two substances should be pulverized *separately* to avoid explosion; they are mixed on a sheet of paper, either with the hand or with a quill feather. To light place a little of this mixture on a piece of paper and light the turned up edge so as to give time to get out of the way. Fifteen grains of the mixture are sufficient for an instantaneous portrait, and forty-five grains for a group.

DR. VOGEL has made known a simple method for toning prints on Eastman paper; he uses for this purpose a bath of nitrate of

uranium and of red prussiate of potash, composed as follows:

Water . . . . .	100 parts.
Nitrate of Uranium . . . . .	1 part.

Water . . . . .	100 parts.
Red Prussiate of Potash . . . . .	1 part.

Mix in equal parts.

Before toning the prints should be well washed.

Mr. E. Vogel has made experiments in regard to the durability of prints on albumen, Eastman, and platinum paper; a first experiment was made by exposing different prints to the action of chlorine; the platinum prints were the only ones that were not affected; other prints were submitted to the action of sulphuretted hydrogen; those on Eastman paper resisted remarkably well; after having been exposed twenty-four hours to the action of this gas they but slightly turned yellow, on the other hand, a wet platinum print took a very strong brown color; examination demonstrated that it was the paper and not the image that had become brown. Albumen prints do not resist the action of sulphuretted hydrogen, even in the dry state.

M. E. VALLOT, a photographer attached to the printing establishment of the Bank of France, writes as follows:

"I have just made some experiments for improving negatives that could not be used for printing, even after energetic strengthening. The print No. 1 was printed from a negative strengthened with bichloride, it is far from being satisfactory. I then conceived the idea to make a positive of this cliché, by contact with a gelatino-bromide plate, then, for this positive, I made, also by contact with the gelatine, a new negative; the result was not satisfactory. I then thought by using a substance less sensitive than the gelatine, I would arrive at a better result, and this was the case. I prepared dry collodion plates (tannin), and I obtained by this means a very vigorous print with fine details which enabled me to obtain on gelatine, and by contact, a new cliché much improved, as print No. 2 shows.

MR. GÆDICKE has made numerous experiments to ascertain exactly what ad-

vantage is obtained by using the *preliminary bath of hyposulphite of soda*, which has been praised as an accelerator. He found, as it had already been shown in France, that this bath hastened the development of the image, but gave no more detail than the simple developing bath. He found, also, that bromide of potassium not only did not accelerate the coming of the image, but destroyed the fine details. This gave him the idea of mixing together the bromide of potassium, which prevents veiling, and the hyposulphite, which has a strong tendency to produce it. Hoping in this way to obtain a more rapid development and a purer image. He found that the proportion of hyposulphite to bromide should be as one to six. Here is the formula:

Hyposulphite of Soda, Crystallized . . . . .	1 part.
Bromide of Potassium . . . . .	6 parts.
Water . . . . .	60 "

He does away with the preliminary bath and adds one drop of this solution to 3 fl. drams of the oxalate developer. He thus avoided veiling and obtained the same number of the sensitouchers as with the preliminary bath, and the development was one-half shorter than without this addition, and the negatives have properties that render them very suitable for the operations of printing. To all these advantages is to be added simplicity of the manipulations, since there is a bath dish less.

**TO AVOID GRAINING IN ENLARGEMENTS.**—For this place the prints to be reproduced against the plate of the pressure frame and, naturally, make the reproduction when the print is under glass, care being taken to avoid reflections. Light well in front and never on the side, which will prevent the grain even when the pressure frame is not used. There is still another way, but which cannot always be resorted to, namely, enamelling against a polished glass plate which has been rubbed with talc.—*Journal de L'Industrie Photographique.*

**STRENGTHENING GELATINO-BROMIDE PLATES.**—Mr. W. B. Burton read a paper at the Glasgow Convention on strengthening. With collodion plates this operation

is always done with the aid of a silver salt, but with gelatino-bromide plates there is always danger of spotting and spoiling the negative, sooner or later. The author, however, succeeds perfectly well with the following baths:

A.—Pyrogallic Acid . . . . .	10 grains.
Citric Acid . . . . .	2 "
Glycerine . . . . .	1 fl. oz.
Water . . . . .	1 "
B.—Nitrate of Silver . . . . .	62 grains.
Nitric Acid . . . . .	30 drops.
Water . . . . .	1 fl. oz.

In using add two parts of water to one part of the liquid A and pour it evenly over all the surface of the plate. When the liquid flows easily over all the plate, allow to drain in the glass, in which have been placed a half dozen drops of the liquid B; then again pour over the film, constantly agitating the liquid. The density of the image increases but very slowly, but it is much more apparent after the coating has dried, and this fact should be taken into account.

**SILVER STAINS ON GELATINE NEGATIVE PRINTS.**—The negative print is washed for five minutes in pure water, then plunged into a solution of iodide of potassium (1 part of iodide of potassium to 24 parts of distilled water). The plates are allowed to remain in this bath for about ten minutes. When taken from the iodide of potassium bath, the plate is plunged into a solution of cyanide of potassium (1 part of cyanide of potassium to 16 of distilled water), and the spots are carefully rubbed with a cotton wad until the plate is very smooth. To remove very old spots, more highly concentrated solutions are used, in which the plates are allowed to remain a longer time.—*Journal de L'Industrie Photographique.*

**PHOSPHORESCENCE AND PHOTOGRAPHY.**—At this time, we find in our gardens the glow-worm called *Lampyrus noctiluca* which illumines our clumps of plants with mild gleams of a beautiful greenish-white. I have endeavored to verify if the light emitted by this insect was photogenic. For this, in a paper box, the lid of which was perforated by means of a pin, to assure the circulation of the air, I placed a gelatino-

bromide silver plate and over it a female glow-worm the luminous sections of the abdomen of which are rather numerous, the whole being deprived of light. I kept the insect in its prison during the entire night, the next day, after having given the worm its liberty, I tried on my plate the effect of an alkaline developer. I soon saw make their appearance large black spaces indicating the parts on which the worm had rested, these spaces were joined together by black tracings which showed the nocturnal course of the insect. With this negative I made a positive print. At this season of the year at which a number of amateur photographers are engaged in outdoor work, it is perhaps well to mention this little experiment. Analogous ones might be made with sea-water rendered phosphorescent by colonies of *Noctiluca miliaris*, and also with phosphorescent plants, such as *Agaricus olearius*, *Rhizomorpha subterranea*.—*La Nature*.

**PASTE FOR PHOTOGRAPHS.**—Allow me to give advice to amateurs who might be tempted by the formulas of starch paste mixed with glycerine. This paste, recommended in some of the books for preventing prints from cockling, may be used if desiccation is rapid and energetic; but, if it is slow, as it happens in a closed album, the glycerine, with its avidity for water, retains the humidity, and mould here finds excellent conditions for its development. In consequence, we soon see the photograph covered with greenish spots, due, probably, to *Penicillium glaucum*. Rust-colored spots also show themselves, but in lesser number. To resume, the print is nearly or entirely lost. Conclusion: It is better to use ordinary starch paste.—A. MERMET, *La Nature*.

### PHOTOGRAPHIC FACTS AND FANCIES.

**AGALITE IN PAPER PULP.**—Our manufacturers of paper are using, more and more, mineral substances in the pulp. Some day we will have a mineral paper which will be nothing else, probably, than the flexible glass of which philosophers have sometimes dreamed. For a long time kaolin (silicate

of alumina), and the sulphate of impure alumina, obtained by acting on the kaolin by hot concentrated sulphuric acid, have been used. It is asserted that it is the mineral substance which gives to the paper the property of acquiring a beautiful smooth and brilliant surface. Of late another mineral is supplied by the trade, called *Agalite*, a kind of *talc* (silicate of magnesia), and which is much used in place of kaolin in the manufacture of paper; especially in America which furnishes us with this substance.

Agalite is a fibrous mineral, unctuous to the touch, very white, insoluble in water, and which gives on analysis 62 per cent. of silica, and 33 per cent. of magnesia with  $\frac{1}{10}$  oxide of iron,  $\frac{3}{10}$  albumen, and  $4\frac{1}{2}$  for 100 of water. Its density varies from 2.22 to 2.56, according to Mr. W. J. Macadam who assures us that it is preferred to kaolin for paper pulp, that it is found principally in New Jersey, and that it is this substance which gives the very decided glacé appearance to certain American papers.

We have often examined the papers in question and they are certainly admirable for engravings, etc., but for reading they are too glossy and tire the eyes (that is to say the head).

**TIME OF EXPOSURE.**—At the Photographic Convention which met this month at Glasgow, a great number of interesting papers were read; we will mention to-day a communication of Lieutenant Burns on a method of determining the time of exposure for dry plates. The author has recourse to positive albumen paper (*recently prepared*), comparing the time necessary to blacken it, with the time required for producing the most favorable effect on dry plates. This paper gave rise to a prolonged discussion.

**DISCUSSION CONCERNING PAPER NEGATIVES.**—At the Liverpool Amateur Association a long discussion took place on the respective advantages of glass and paper as supports for the negative film. Many of our amateurs have definitely adopted paper; but it seems to result from this discussion that negative paper has not yet reached that degree of perfection to always permit its use in place of glass.

PHOTOGRAPHING INTERIORS.—All photographers who have attempted the reproduction of interiors, know how difficult it is to obtain good results when they are forced, owing to the position of the instrument, to point the objective directly against a window. As soon as focussing has been done, we are reminded by Mr. Lennard, of our anxiety concerning the halo all around the window which will show on the negative. Solarization comes in here to injure the print in spite of the most skilful strengthening and retouching. Up to the present time we were contented with putting on these windows red tissue paper, but the result was unsatisfactory, now here, is a process by means of which we can photograph interiors against the light without solarization, at the same time the perspective seen from the window is reproduced with perfect clearness. It has recently been used by M. Victor Angerer.

The celebrated Viennese photographer had been entrusted with making the photograph of a *Salon* in the Rothschild Palace. Besides the difficulty resulting from the contrast between the colors of the hanging, the furniture, etc., another circumstance complicated the operation; the objective was pointed toward a circular building, lighted by two windows, one of which was immediately opposite the objective; beyond this

window the Church of St. Charles was seen. Mr. Angerer solved the problem by producing his negative without solarization, in the following manner: He carefully focussed in full light, he applied black paper on the troublesome window, and he closed the second window, that placed on the side, by means of a double curtain that allowed but little light to pass through; the other windows of the *salon* served as a source of light, Mr. Angerer pasted some white tissue paper over them to obtain diffused light. He then exposed a dry plate for a day and half, after having placed a small stop before the objective. After this lapse of time he supposed that the plate was overexposed, and he shut the objective. He then removed the curtain from the side window of the circular building and he made another exposure, but only for fifteen seconds, the plate being still in the camera. He again closed the objective and removed the black paper from the opposite window, making another exposure, and this time of four minutes. The effect was surprising, no trace of solarization on the objective. The whole was perfectly harmonious, and what gave a special charm to the photograph, beyond the window, which might have been so embarrassing, was seen the Church of St. Charles, very sharply reproduced.—*Journal de L'Industrie Photographique.*

## Editor's Table.

MR. W. B. FOWLER, Petoskey, Michigan, has favored us with some characteristic pictures of the Ottawa Indians which abound in the neighborhood of that "Chautauqua of the North West" region. One of "Mother Smoke," who is ninety years old is particularly fine. Some fine views and some pictures of the engine-room of the *Champlain* recently burned on the bay near Petoskey are also sent us by Mr. Fowler. He is one of the brightest young artists in the North West.

"THE MODERN NILE" is the title of the leading article in *Scribner's Magazine* for September. It covers 28 pages of the magazine, and has 17 engravings from the personally made photographs of the author, Mr. EDWARD L. WILSON.

Our readers unacquainted with Mr. Wilson's literary work outside of dry photographic technique will, we feel, enjoy his original treatment of the antique.

"WANT it right along—sure." This is what our subscribers who "tried" our magazine for a half year say, when they renew.

THE Canada Convention, held in Toronto September 6th, 7th, and 8th, was, we understand, a success, though the attendance did not reach fifty. Particulars will be given later.

THE Moss Engraving Co., 535 Pearl St., N. Y., send us a parcel of Mosstypes of very superior quality. Great advances have been made in the

art of photoengraving by this new method. Our readers can all solicit orders for this work and "make business." Circulars and specimens are supplied free.

*The Art Journal* for October includes a rare collection of studies for the would be artist-photographer. Mr. W. UNGER's etching of the "Raising of Jairus's daughter" from a painting by Gabriel Max, is a fine study in light and shade, composition and line. This frontispiece is one of the finest the *Art Journal* has ever given us. It is followed by illustrated papers on "Ceylon Scenery," "Illustrations of German Art," "Some Flemish Brass," "The Mountain of the Monks," "Barnard Castle," "Gesso Painting," and "A Foreign Artist and Author in England," containing in all twenty-five illustrations, every single one of which affords some useful lesson to the practical camera workman, and many of them not at all too ambitious for him to attempt. The more one studies such handsome engravings as these the more rapidly one improves. The International News Co., New York, are the agents for the *Art Journal* and Messrs. J. S. VIRTUE & Co., London, are the publishers.

OUR last number was delayed by Philadelphia's grand three day celebration of the Centennial of the Constitution. Printers and binders patriotically refused to work.

*The Curio*, a new illustrated monthly magazine, announced early in the Summer, has at last come to hand and fully reaches what we were led to expect from it. It is devoted specially to geneology and biography, heraldry and bookplates, coins and autographs, rare books and works of art, old furniture and plate, and other Colonial relics. In addition we are led to expect in "The Curio Camera" a full page portrait of some noted person—this time a full length of the Prince of Wales. The frontispiece is of "A Printing Office in Paris in 1469," and is splendidly engraved. The other engravings are also finely done, and the *Curio*, as a whole, is an example of perfect magazine manufacture. The letter press is by the best of writers in the varied departments; the editorials are chatty and friendly and do not seem to come from a stranger. The gems of the number are Mr. WM. Kurtz's Meissenbach-Vogel azaline process engravings of George Washington, from Stuart's three-quarter standing and bust portraits. They are exceedingly valuable. In fact, the *Curio* wins at once and will doubtless soon find

a popular niche in the hearts and libraries of people of taste and sense. \$6.00 a year, 60 cents per number. R. H. WRIGHT, publisher, 6 Astor place, New York.

AS PRESIDENT of the P. A. of A., no gentleman labored more constantly and faithfully to be careful and fair toward all, than did Mr. G. CRAMER. It was a case of real self-sacrifice for a man so driven by the cares and anxieties of an immense business, to set them all aside and devote himself so unselfishly and enthusiastically to the interests of the fraternity. It is a pity that he was not better understood by those for whom he wrought, and given more thoughtful, generous, and respectful treatment than he sometimes received.

Power should be given to the Executive Committee to dispose of all questions of a private and trivial nature, and the precious time of the sessions be devoted wholly to the interests of photography. Mr. Cramer was always a strong man in our fraternity, and he goes out stronger than ever, the petty annoyances given him, for petty reasons, nevertheless.

MESSRS. SWEET, WALLACH & Co., Chicago, presented the visitors to the Convention with a very handsome souvenir containing the portraits and biographies of all the gentlemen who had been Mayor of Chicago. It was a real work of art and not the least artistic was the special department devoted to the enterprising firm named.

OUR foreign relations are not as extensive and reciprocative as they should be. The Executive Committee of the P. A. of A. should devote some attention to this matter for another year. There were no American exhibits at Stuttgart this year, although two medals were offered. There is to be a grand exhibition at Calcutta, India, (see page 600), in January, 1888, and some fine American pictures sent there would naturally send some interesting things this way from the far East.

WE hope Mr. STAPLES' resolution on Insurance will not be allowed to fall into overlook Section.

WE are plodding on Mr. CLARK's protective scheme and will be glad to have the views of some of our patrons.

THE Inglis Argentic Paper Co., Rochester, N. Y., displayed some very excellent prints at Chicago, although we unwittingly failed to allude to them in our comments a month ago,



The "Concealed" Camera is now made in a new form with many improvements. Four pictures only are made upon a plate now, but they are large enough for a lantern slide. This is an important advantage.

PLEASANT.—Mr. W. H. STAUFFER, Asbury Park, N. J., was recently presented by his employés with a handsome silk umbrella with a gold mounted handle. A collation followed.

Mr. A. J. RIDDLE, of Columbus, Ga., one of our nearly Quarter century subscribers, writes from "Camp on the Chattahooche River, Ga." viz. "The last PHILADELPHIA PHOTOGRAPHER was sent in with my other mail on mule back. I tell you it was a treat to get it so far in the wild woods—where the katydid sing and the bullfrogs rumble."

THE new high grade productions of Mr. SUTER are the rapid "D" series, the single landscape lens, and the rapid portrait lens for cabinets and 4-4. We shall present "Our Picture" made by one of the last, before long. MESSRS. ALLEN Bros., Detroit, Mich., are the sole trade agents for America.

A FREQUENT and sensible birthday present from the admiring wife to the enthusiastic photographer, is a subscription to our magazine or photographic books. We have assisted at several such occasions recently.

MESSRS. VAN LOO, of Toledo, O., and Messrs. McKECKNIE & OSWALD, of the same city, each won five first-class prizes at the late State Fair. They are all rapidly improving.

GRAY'S New Periscope Lens comes as the next candidate for optical favor. It is a little charm. It is a rectilinear combination for views and architectural subjects that require microscopic definition over an extended field. It is remarkably low priced as will be seen by specialties.

MESSRS. CHARLES COOPER & Co., 194 Worth St., N. Y., have favored us with their four page list of photographic chemicals. Their list constantly grows in size and the quality of their productions is unexcelled in the world.

HENRY O. AVERY's paper on "The Paris Schools of Fine Arts," in *Scribner's Magazine* for October, is fully illustrated from very fine photographs taken under the direction of the French Government. The remarkable architect-

ture of that building is beautifully pictured. There are also portraits of Taine, Cabanel, Pils; and Gérôme—the most eminent professors in the school. The article is very instructive.

This will give our art loving readers a splendid opportunity, as the cost is only 25 cents.

PICTURES RECEIVED.—From Mr. J. M. BRAINERD, Rome, N. Y., two fine cabinets of a dainty little Miss with plenteous curls upon her fair head and no shoes upon her tiny feet, and who is to be "Our Picture" presently. From Mr. C. P. McDANNELL, Titusville, Pa., examples of his work including one of a jolly white capped infant, mouth wide open and eyes full of infectious laugh—a capital picture.

*Photographic Printing Methods: a Practical Guide to the Professional and Amateur Worker.* By the Rev. W. H. BURBANK. Scovill Manufacturing Co.

"The photographic world will be under no small obligation for this very convenient compendium of all that is most wanted as information and instruction, whether to the practised printer who sometimes forgets formulas, or to the beginner who has them all to learn. It comprises all the various methods of producing positive images from the negatives which are made in the camera—the ordinary silver print on albumenized and plain papers, iron and uranium, platinum, carbon, all the mechanical methods based on gelatine or asphaltum, and known as heliotype, collotype, albertype, etc., or heliogravure, photogravure, etc., and even the difficult processes of enamelling by photography and putting the positive image on the block for wood engravers. But what is the highest importance in all these processes, the peculiar quality of negative requisite for the method desired, is not touched on at all; and if a second edition of this manual should be called for, we recommend that this point be put in a most clear light."

The above by Mr. W. J. STILLMAN in the *Saturday Evening Post*, says none too much for Mr. Burbank's excellent work. The deficit he points out can be easily overcome by reading *Wilson's Quarter Century in Photography*.

*The Export Journal* is a new monthly devoted to export and import, and published in French, German, and English by Mr. G. HEDELER, Leipzig, Germany. It will fill a want in the trade.

Mr. OSCAR SUCK, Carlsruhe, Germany, has presented us with the entire exhibit made by

him at Chicago. We shall share the gift with our readers by one or more mosaics made up from the collection, and in our next issue a phototype by Mr. F. GUTEKUNST of Mr. Suck's wonderful picture of the Market Day at Carlsruhe—a wonderfully fine production—will appear.

As to *Quarter Century*: "Without doubt the best book published on photography." E. FEIGER & SON, Pomeroy, Ohio. "It is fine, and every wide awake photographer will have a copy." W. B. GLINES, Hutchinson, Kans. "It is not only full of meat but lots of it. Any one who gets it properly digested will have a liberal education in art, optics, and practical photography. The illustrations must have cost a neat fortune." J. M. BRAINERD, Rome, N. Y. "To say that I am pleased with it would be small praise. It is a splendid work." H. F. ROBINSON, Phoenix, Ariz. "Am well pleased and think it is ahead of *Photographies*." C. W. MOTES, Atlanta, Ga. "I have it. I buy all your books as soon as they are out." W. V. LANE, Camden, Maine.

As to THE PHILADELPHIA PHOTOGRAPHER: "I have taken your journal for over twelve years, and wouldn't be without it if I had to go with less to eat." W. V. LANE, Camden, Me. "Been busy ever since I subscribed for it. It helps me make better work." GEORGE C. WESTON, Pocomoke City, Md.

THE AIR BRUSH work at the Chicago Convention having caused several inquiries, we give the following points of information:

The water color by Mme. Tubit was a perfect specimen of the careful smooth work so much in favor fifty years ago. The picture, which was certified to be entirely Air Brush, bears the closest inspection under a magnifying glass without loss of its character. The whole is like a magnificent exaggeration of an exquisite French miniature painting. On the other hand, the two water colors, of lady and of child, upon silk, done by Prof. N. A. Wells, of Syracuse University, New York, were worked by much boldness and breadth of treatment. Prof. Wells has studied abroad under Bougereau and Fleury, and his work is modern and effective.

While the sales of the Air Brush are made largely to photographers, yet the Brush is now used largely for photo-enlarging and copying, lithography and other practical applications of art, yet we know its principle is of application with all dilute pigment, and in time the artistic world will recognize it. Such pictures as those referred to above prove the claim we made for

this instrument when we first saw it as a legitimate and valuable artists' tool.

THE Constitutional Centennial celebration ceremonies, parade, etc., were photographed by "all Philadelphia." The best results we have seen so far are from Messrs. ROBERTS & FELLOWS, 1125 Chestnut St., Phila. They had a fine stand in the new Public Buildings, looking up Broad St., and secured some marvellous views of the grand parade which for hours continued to pass before their several cameras. A catalogue is supplied free.

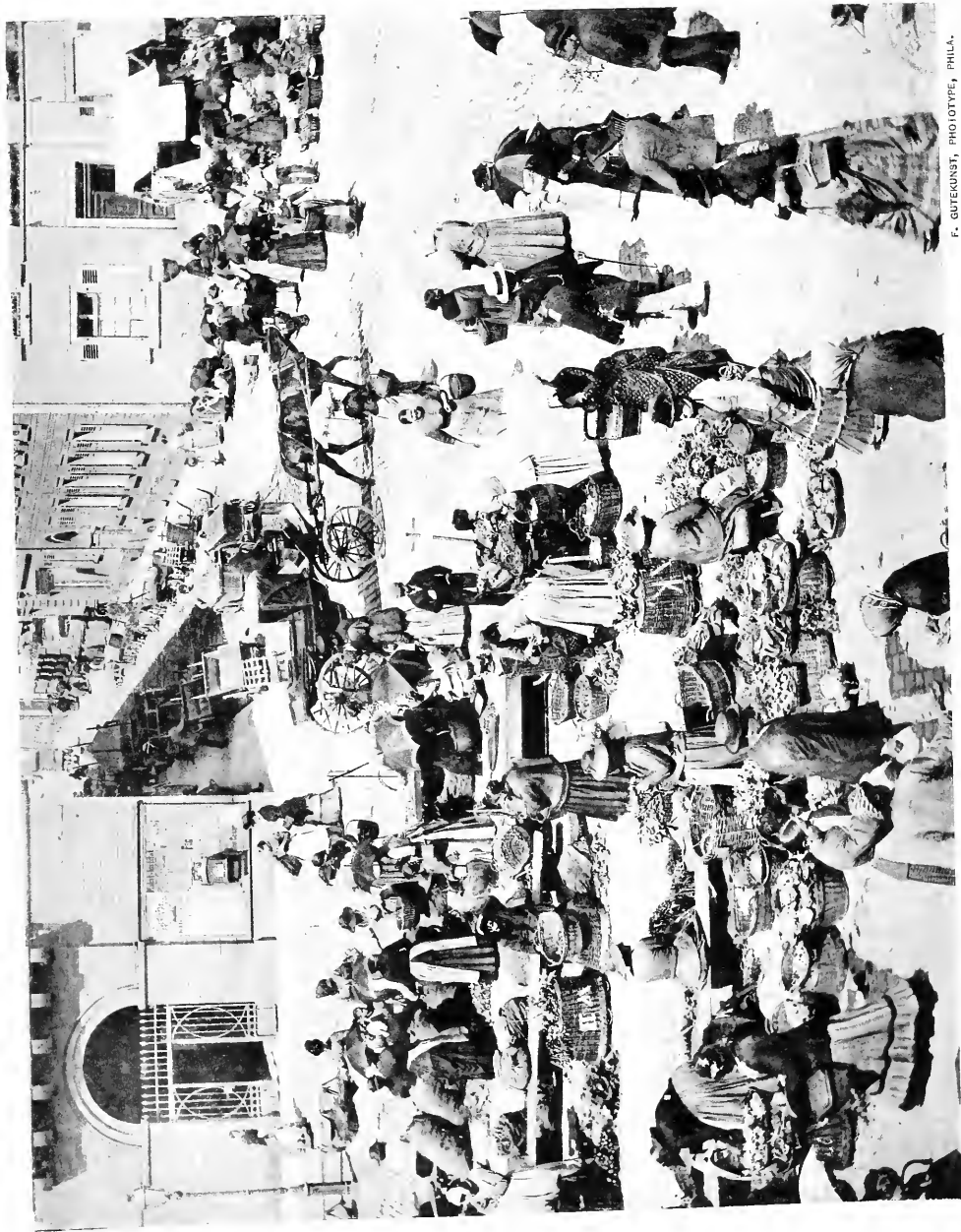
*The Public Ledger* of Philadelphia was undoubtedly impressed by the picture which appeared in our issue of August 20th. We clip what follows from the editorial column of that excellent newspaper.

"The remarkable advance that has taken place in recent years in the application of photography to the production of pictures mechanically printed has seldom been better illustrated than by a picture used to illustrate the *Philadelphia Photographer* of August 20th. It represents the final tableau in "The Taming of the Shrew," as produced by the Daly company, scene which, on account of its richness and beauty, will long be remembered by all who saw it. The negative was taken on orthochromatic plates to get the true value of the brilliant colors; the stage was lighted by electric lights in such a way as to produce artistic effects with plenty of detail; and the pictures were finally reproduced by the photogravure process and printed in sepia, to add to the richness of the effect. The result is an art production by chemical and mechanical processes that is in its way comparable to the best work of the engraver or etcher. It is something far beyond the ordinary work of the photographer, and may be considered the highest development of his art. Such a picture could scarcely have been made before the invention of orthochromatic plates and the introduction of electric lights in theatres."

A few years ago our art did not receive such distinguished recognition from the daily press. But we have won the honor *by merit* and are all proud of it.

Mr. W. E. HART, Watertown, N. Y., one of our old subscribers is now Mayor of that growing and enterprising city. If he makes as good a Mayor as he is photographer Watertown will improve under his care.





SHULZ BUCK, CARLSRUHE.

MARKET DAY, CARLSRUHE.

F. GUTERKUNST, PHOTOTYP, PHILA.

THE

# Philadelphia Photographer.

EDITED BY EDWARD L. WILSON.

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OCTOBER 15, 1887.

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## ANOTHER BLEACHING PROCESS.

THOSE who are in any way interested in photo-engraving must have been interested in the paper read by Mr. Beach at the Chicago Convention, and reproduced in this magazine a month ago. He gave a good method there of bleaching bromo-gelatine prints, which gives another advantage to the photo-engraver, because the glossy surface of albumen paper is dispensed with, by substituting the matt surface of the bromo-gelatine paper.

It would seem that Mr. Beach experimented considerably before the proper result was obtained. We were more fortunate. So long ago as May, 1886, we had occasion to prepare some silver prints on plain paper, for a New York artist for reproduction; he wanted enlargements from small negatives to 14 x 17. As we were not fitted with a solar camera, we conceived the plan of bleaching the bromide paper. We first tried the usual bleaching agent, bichloride of mercury. In this case the action was similar to what Mr. Beach describes. It continued to a certain stage and there stopped. But quite a distinct yellow image was left. We then made a solution of cyanide of potassium and added a flake or two of iodine. These two agents seem to possess a wonderful affinity for each other; the iodine is readily taken up. We made the solution quite weak, and flowed it over a bromide print, which had been drawn upon with water-proof ink. Immediately the photo image began to disappear, and shortly we had a fine ink sketch

standing out beautifully against a perfectly white background. This is certainly a much simpler and, withal, easier plan than Mr. Beach's. We submit a bromide print, half of which has been subjected to this action.

ROBERTS & FELLOWS,  
Philadelphia.

[The bleached print is clean and bright and all one could desire for the purpose.—  
Ed. P. P.]

## PHOTO-TRICYCLING ACROSS ENGLAND.

ONE of the various ways of having "a good time" during the summer holidays, is supplied by the camera and tricycle combined. Two of our friends have had that privilege, "Across the Island" of England being their running ground.

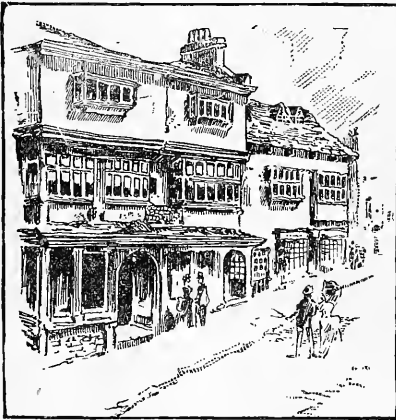
A few extracts from one of their letters, which appeared in *Yenowine's News*, Milwaukee, will serve to show our readers how such trips are made, and how they are worked up and illustrated by means of the camera, for the newspaper-reading, travel-loving public:

"We put up, as a rule, at the country inns, and never once had an uncomfortable bed, though we paid upon one occasion as low as one shilling (twenty-five cents) for a night's lodging. It is best to take a substantial breakfast, which generally consisted of eggs, bacon, toast and tea, or chops, eggs and tea. This you can always get good. As a general thing we took a midday dinner.

After riding twenty or twenty-five miles on a tricycle a lunch counts for nothing. Dinner consisted sometimes of fish, and always of a hot joint, vegetables, pastry, and cheese. I usually took a pint of bitter ale with my dinner, and soda and milk with the evening meal. The latter generally consisted of eggs, toast, and marmalade. Breakfast cost from fifty cents to sixty-five cents, dinner from sixty-five cents to eighty cents, and tea about thirty-five cents. We paid at these inns from twenty-five cents to seventy-five cents for our beds, and a small charge for attendance.

\* \* \* \* \*

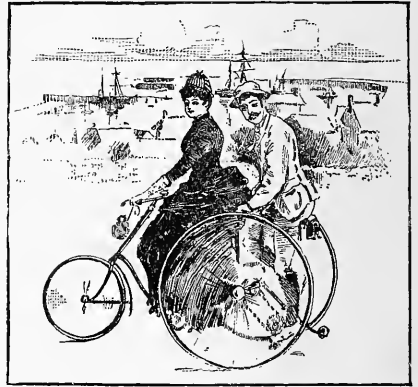
"Dipping a little southward, we came within a couple of miles of the coast, and at Warmwell the road took a northwestern direction to the ancient town of Dorchester.



Judge Jeffrey's Lodgings.

"Two tired mortals we were ascending the steep High street of this old Roman town, an avenue of high trees circling it, and a remarkable Roman amphitheatre on the outskirts. The run that day had been close on fifty miles. The first place that looked like a hotel we turned into. It was not a swell affair. The hostler could not boast a nose, the landlady was deaf, and the only servant was lopsided and cross-eyed. But these were trifles. They had a bed and could give us bread and cheese and beer. It was after ten o'clock. The tap-room of our hostelry was filled with villagers, drinking, smoking, and making a good deal of noise.

One of the number was reciting the "Charge of the Light Brigade" with a strong Dorset dialect. In spite of the noise down stairs, I was glad enough to retire, and did so amidst the uproarious confusion of the tap-room below, falling asleep amidst the volleys of applause which followed the effort of the local celebrities to entertain the village crowd.



"Breakfast at 7 o'clock, we took two or three views, among others one of the Roman amphitheatre and Judge Jeffrey's lodgings; and taking the Bridport road began a toilsome ascent of the hills which abound in this part of Dorsetshire. In many parts the roads were six inches deep with loose flint stones, and our progress was slow. Although the distance to Bridport was not over fifteen miles, it took three hours to do it. Bridport was once famous as a manufacturing place, especially for manufacturers of hemp. A "Bridport dagger," in olden times, meant a rope, and to be "stabbed by a Bridport dagger" was a delicate way of saying a man had been hanged. At the Bull we enjoyed a fine joint of roast beef, a lolly-polly jam pudding, with thick Dorsetshire cream.

"Mr. Wilson found that the barmaid of the Royal Lion was an expert tricyclist. With the "detective" concealed under my coat I took a view of the esplanade that evening, and the reader must judge if my first attempt was a good one."

Surely this is one of the pleasantest ways possible of gaining health, information, and pictures.

## NOTES FROM LONDON.

BY T. C. HEPWORTH, F.R.S.

THE summer here is quickly waning, and the leaves are falling off the London trees. Why the foliage in town should appear and disappear far earlier than it does in country places, is a question difficult to answer. But it is so, and the stranger is surprised to find leafless branches here before the autumn tints have appeared in rural districts.

On the whole, London is well off for foliage. In the various squares, crescents, and gardens, but more especially in the once fashionable Bloomsbury district, the noble plane tree flourishes with a vigor and beauty which seem unaccountable in an atmosphere which is so famed for its impurities. These trees always look fresh and pleasant; one reason being, that they shed their bark periodically, and thus prevent an accumulation of metropolitan soot. One tree, one of the few left in the city proper, has been immortalized by the poet Wordsworth. This still flourishes in Cheapside, and looks as healthy as possible. It is astonishing to note the wonderful relief to the eye which this spot of green in a region of bricks affords.

In the present day, when a man who does not carry a photographic kit is apt to be stared at, we all hope that the love of our beautiful art will sow the seeds of much good for the future. The man who takes up photography soon finds that his powers of observation are being rapidly strengthened. He looks about him, "seeking whom he may devour," photographically I mean, of course. Every street has for him some points about it which are worth a little study. There is a beautiful effect of light and shade, or a picturesque corner with some quaint details upon which the destroying hand of the brick and mortar fiend may be laid to-morrow, before one has had time to copy it. In this way the photographic aspirant becomes a kind of guardian to surrounding objects, and will send up a cry of remonstrance, in the form of a letter to the *Times*, directly one of his gods is threatened with harm. The town trees should find a place among the most cherished of his picturesque belongings, and it will probably

be due to his influence that fresh ones will be planted in new thoroughfares. As a means of health, trees are even more important, so that in advocating their preservation as ornaments we plead a double boon.

The rustle of the trees in front of my window, on a breezy day, has given rise to the above thoughts; although, when I sat down to write this letter, I had something quite different to say. However, let me say it now. I have been often asked what is the best size of camera for a beginner to begin with. My advice has always been in favor of a small size, say 5x4. But I have lately modified my views in deference to my own experience. Some time ago, when I was between twenty and thirty years of age, I carried a 10x8 camera, and thought light of the burden, even when out for a long day's trudge. My own weight was then nine stone. A decade passed, and my weight had reached eleven stone. The big camera seemed to me to have increased in heaviness too, and I relinquished it in favor of a 7½x5. Years passed on, until the late spring, when my weight had sprung up to twelve stone and a fraction. By this time the 7½x5 had got on in life, and was most certainly double its former weight. I gave it up, and now carry about with me a quarter plate set, which is light as a feather, and does all the work I want. From these remarks it will be seen that it would be quite possible to construct a table giving age and weight of different individuals, and the weight that each one's camera should be. Such a table would be of far more practical value than the elaborate lists that are printed to enable one to judge of the exposure necessary under different stops and circumstances.

But, seriously, I am quite sure that few photographers realize what good work can be done with a little camera, always provided that it is furnished with a first-class lens. I have just had a good illustration of its wonderful capabilities. A week ago I went to the old city of Rochester, and from the top of the ruined castle there I took a quarter plate view of the Cathedral. I used a short focus, wide angle lens, for I was so close to the subject that by no other means

would my tiny camera take it all in. The time was four o'clock, and the warm glow of the afternoon sun bathed the Cathedral in a beautiful light. The lens was well stopped down, and the exposure was about one second. The negative I obtained was so full of detail, and so sparkling in character, that I resolved to have it enlarged. The result now lies before me, a beautiful picture on bromide paper measuring 22x16 inches. The picture is remarkably sharp up to the edges, with just that blunting of the harder lines in the original which gives a good enlargement such an additional charm to the artistic eye.

I fear that my letter this month will be voted extremely full of nothing at all; but if I have in the last paragraph pleaded effectually for the advantages of small negatives, I feel that I have done some good. There is a rush just now after large cameras and plates, but the work done with them is generally inferior to that executed with apparatus of more modest dimensions. "A live dog," be it only a puppy, "is better than a dead lion," so said the preacher, and I think that he was right.

[Translated for the Philadelphia Photographer.]

### ANALYSIS OF THE SILVER BATHS USED IN PHOTOGRAPHY.

BY ERNEST BOIVIN.

WHEN it is a question of sensitizing paper to be used for printing positive prints to obtain a good result, it is absolutely necessary to ascertain the exact strength of the silver bath. Of all the processes used, I have found none more convenient and none more economical than the following:

I take a glass graduated in cubic centimeters, from 0 to 25, for example; and I place in it, up to 0, the necessary quantity of the following liquid:

Distilled Water . . .	1090 cc.
Chloride of Sodium, Dry . . .	6 grammes.
Bichloride of Potash . . .	1 gramme.

In a test tube I pour exactly two cubic centimeters of the bath to be analyzed and I then let fall, drop by drop, into the liquid

the mixture contained in the graduated glass. The purple precipitate first formed soon gradually becomes white by the addition of the liquid. It is at this time that we are to read on the graduated glass the figure representing the quantity used to obtain the result. This number gives exactly the weight of the nitrate of silver contained in two cubic centimeters of the bath to be analyzed.

It is better to use this process to ascertain the strength of old silver baths instead of the hydrometers in general use which never give exactly the weight of the nitrate of silver, for the reason that the baths, by their use, contain other variable salts according to the chlorides and iodides which have been used.—*L'Amateur Photograph.*

### ARTISTIC PHOTOGRAPHY.

BY W. H. WHEELER.

THE mite I shall have the honor of dropping in your treasury will be a very small one, but I trust will not be considered entirely valueless.

Now, a negative may be rightly exposed, intelligently developed, beautifully printed and framed, and even sent and hung at an exhibition; yet, if the photograph does not show evidence of artistic selection and treatment, it will miss its mark by a long way; it cannot take rank as a work of art, as every landscape and figure photograph should. Well! If you have no art instincts, what then? Cultivate some. Most men have got some feeling that way, especially amateur photographers. Read books on composition and light and shade. Then study good pictures, and try and apply to them the rules you have learnt. Go to nature and do the same. When you have done this, you will be astonished to find how your artistic intelligence has grown, and how much better your work is, as regards proper selection and treatment of subject.

The later photographic exhibitions show how rapidly and widely art influence is spreading among photographers.

My remarks will be mainly directed to the rules which should guide us in the choice of



our subjects, so that our photographs may be above the commonplace, and possessed of artistic merit. I shall refer chiefly to landscape photography. Perhaps as good a way as any to start with will be to consider what influences an artist when he works from Nature.

The question arises, how far is an artist of use to a photographer? Well, certainly, so far as the choice and arrangement, treatment of light and shade, and sentiment of his subject are concerned, an artist is not, as a rule, a good photographer; most of the photographs I have seen taken by artists, from a photographer's point of view, were very poor indeed. The artist, as a rule, aims only to produce such things as a memorandum of detail, pose of a figure, or folds of drapery, not a technically good photograph.

Now let us away with our artist, and get what we can out of him. As we have nothing to do with color, only so far as it represents tone—and with the orthochromatic plates the difficulties of representing right color tones seem to have been overcome—we shall imagine our man to be a worker in monochrome.

The first thing to be done is to settle on the subject, and, if you have ever been out with the man who paints, you will know what patience means. This doesn't please, that won't do. He takes no end of trouble to get at the best point of view—he wouldn't be an artist if he didn't take trouble—and, perhaps, while you have been exposing a dozen or more plates, and want to go home, the painter hasn't yet planted his camp-stool. And this brings to the first point of importance—*Thought and Time* spent in the choice of subject. Of course, sometimes one can hit at once on the right spot, but we must know it when we hit it, and, perhaps, have a wander round to see if it can be improved upon.

In these days of cheap plates and roller-slides, too much promiscuous work is done; cheap plates too often cheap results; every bit that *seems* pretty is taken, forgetful of the fact that it may look quite a different thing when it is printed. Respect the man who goes out for the day with a dozen plates, and brings home one, or perhaps two, exposures. In all probability his two

will be worth all the dozen of his friend. Too much thought and time cannot be spent in the choice of the subject.

What are the rules which should guide us? How are we to know a good subject when we see it? Will a knowledge of art help us here? It is the thing we want.

A view-meter, such as can be made out of a piece of cardboard, with a hole cut in the centre, of the same shape and proportion as your plate, is invaluable for the selection of your subject; the surrounding scenery is cut off by the margins of the card, and any part of the landscape can be selected; you can see at once whether it will be better as an upright or a long picture.

Good composition and effect are the things to strive after.

The first thing that should claim your attention is the disposition of the principal lines and masses. Don't have any prominent upright lines in or too near the middle, as they are apt to cut your picture in half—giving you two subjects instead of one.

This is a very common fault, and seriously mars what might otherwise be a good subject.

Don't, if possible, have any prominent sloping line running out of the picture.

Don't have your point of interest exactly in the middle or quite at the sides; and don't have more than *one* principal point of interest.

Then come *Light and Shade*. These give expression to the subject. A few words on their characteristic qualities. *Light*, as you know, is always accompanied by the exhibition of form; *Shade*, by its obscuration. That part of the object in light is full of details, which give it its character, and the details are more or less absent from those parts in shade.

The best subjects are made up of broad masses of light and shade, the broader and simpler the better. *The first essential to good effect is breadth*. Too much stress cannot be laid on this point.

Many photographs fail for want of *breadth*—they are petty, and the eye wanders restlessly over them, because the breadth is lost. Never, if possible, have an *equal* amount of light and shade in a picture; have a larger proportion of either one or the other. The

nature of your subject, of course, determines whether the light or dark shall predominate. Try and get a large surface of light, and next to this a large surface of shade, which, in turn, should be thrown up by a deeper tone still. This always gives a rich effect. We may have to wait a long time before the best effect comes on; well, do so, and get about something else. A very good plan is to have a little pocket sketch-book of tinted paper, a pencil, and a bit of white chalk; then, in a minute or so, we can see if the effect is the best for our subject, by very roughly rubbing in the shaded parts, and putting in the lights with the chalk.

It is a bother sometimes to know what effect will be best, but, if the subject is a good one, it is worth worrying over.

*These two rough drawings* will show what I mean by "waiting for the best effect." I may take this opportunity of saying that I am indebted to Mr. N. E. Green's No. 2 book on "Sketchings from Nature" for the subjects of these sketches, as also for portions of this paper.

Let us now try and see what good effects are due to, and this will assist us in our selection of the best.

In the broad mass of light, which is usually represented by the sky, there should be a *leading* mass of light. This is the *high light*.

In the same way there should be a *leading* mass of dark in broad mass of dark. This is the *deep dark*.

And here a system of gradation comes in. The *high light* must not be a spot, neither must the *deep dark*, but the eye must be led up to them gradually by gradations of light in the case of the *high light*, and gradations of dark in the case of the *deep dark*. Light added to light, and dark to dark. The nearer the *deep dark* approaches the *high light* the more startling and energetic the effect, and the further they are removed, the more the sense of repose. Bearing this in mind, you will be a good way toward knowing what effect suits your subject best. And here *sentiment* plays a very important part.

If nature impresses you at all deeply you can't help recognizing suitable effects. But you must be in good health for this. I

defy a man who feels that he has a liver or a hollow tooth to be rightly impressed by nature.

The sketches I now exhibit are intended to show how the relative positions of the *deep dark* and *high light* influence the effect, one giving a sense of repose, and the other a sense of vigor and energy.

Then comes the *half-tint*. This should occupy a large proportion of the subject, for it gives due importance to the extremes of light and shade.

*Balance of effect* next claims attention. It means the carrying of some of the dark into the light, and light into the dark. By so doing harmony is produced. The opposing parts of the picture are united. The eye becomes satisfied, provided always the balancing points, whether of light or dark, are not too small or too large, for if *too small* the balance is not produced, and if *too large* or intense the harmony is destroyed.

And now, lastly, *concentration*. This is a very important matter. It consists in the subduing of those parts of the picture which detract from the importance of the whole. It makes the eye travel into the picture, or brings to a focus that portion which is the most important—in other words, emphasises the point of interest.

Anything that mars the general effect must be subdued. For instance, as I said before, the light which is carried into the dark mass to balance the effect must not be anything like so large and intense as the *high light*, and so with the *dark* which is carried into the light mass.

Any conflicting darks or lights at the sides or corners of the picture must be quieted, as also must any spots of light or dark which interfere with the breadth of the subject, or else a spotty effect will be produced.

You will thus see how using means for the purposes of concentration prevents scattered interests, and conducts to simplicity of treatment.

To briefly recapitulate—A subject artistically chosen must be one made up of pleasantly-opposing lines, with no sloping lines running out of the picture; a broad mass of light and shade, with a lighter mass in the light and a darker mass in dark, with

gradation between their relative positions being determined by the effect you want, whether vigorous or reposeful, which effect depends on the sentiment of the subject; balance of effect carrying dark into light, and light into dark—and *concentration*.

Of course, these rules are not arbitrary ones, but only intended as a *guide* to the artistic choice of subjects and good effects. I may say that they apply alike to figure-subjects as to landscapes. And talking of figures suggests the question, Where shall they be placed in the landscape, if you want them? This depends whether the principal interest is to lie in the figures or the landscape. Whatever you do, don't make them of equal importance, as is so often done. Many a good photograph is spoiled by not attending to this rule, and you may take this rule as absolutely final and unalterable.

If the landscape is the subject, then the figures or figure must be quite secondary to the landscape, and only put in to help the composition and the sentiment. How often one sees a really good landscape photograph marred by figures stuck right in the middle of the foreground, preventing your eye travelling into the picture; or, again, perhaps they are placed quite in a corner. A gate is a very favorite thing to put a figure on or leaning against, breaking up the beautiful line the gate sometimes makes, leading into the picture. If you put figures into your landscapes, put them, as a rule, a little out of the foreground. Green gives very good advice when he says, "Figures should be introduced where the landscape interest is weak, or, in other words, where the tones are somewhat flat and monotonous and details are more or less wanting."

Now, how are we to put all this into practice?

Well, gentlemen, you, doubtless, can answer that question better than I can. Those of you who have all the photographic manipulative tricks at your finger's ends, being well acquainted with the dodges of sky-printing, masking, retouching, etc., will know how, when you have photographed a well-chosen subject, to make a successful and artistic print.—*The Camera Club*.

[Translated for the Philadelphia Photographer.]

## INSTANTANEOUS STOPS.

BY LEON VIDAL.

It would seem that all has been said on the question of stops, and nevertheless much remains to be said. What strikes us is the facility with which stops are found satisfactory which have but insufficient rapidity. 1-100 of a second for the time of exposure is spoken of as sufficient in most cases, and this is a great error. From the numerous experiments which we have just made, it results that an exposure of 1-200 of a second will not give a sharp reproduction of a rapid motion, unless the object to be reproduced is at a considerable distance. To be precise, we say that we have not been able, with an objective having a focal distance of 10 inches, and a stop giving 1-200 of a second, to obtain a sharp image of horse trotting, operating at a distance of 38 yards. It was necessary to make the distance 88 yards to obtain sharpness, and in such a case it is easy to conceive how much smaller will be the size of the object. In a word, to operate when near, to obtain objects of large size when in motion, it is best to use stops capable of giving the 1-300 and even the 1-400 of a second. The question of plates and development is no longer the cause of embarrassment. Our experiments were made with the Lumière plates, blue label, and the views taken in 1-220 of a second are as vigorous and as complete in greens as if the exposure had been normal. There results from this the possibility of showing one-half less; say 1-400 of a second instead of 1-200, without any after difficulty for the development. This same celerity enabled us to obtain very complete views on a cloudy day. The quickness of the stops is therefore of very great importance, and we are forced to recognize that any stop that does not give more than 1-100 to 1-150 of a second is absolutely insufficient. It is important that all makers of stops should attempt to realize a celerity capable of attaining the 1-500 of a second, with the faculty, however, of a larger exposure if possible, by taking into account, either the celerity, or the distance of the object to be reproduced. In our experi-

ments we made use of a French circular stop, which by giving the greatest tension to the spring, gave 1-220 of a second. Now, the point obtained being strongly developed, we came to the conclusion that a still greater celerity would have been entirely successful, and not being able to attain this we diminished the diameter of the stop, and in this case again, success was the most satisfactory kind. What precedes gives an idea of the possibility offered to every photographer of making instantaneous reproductions with very rapid stops. In regard to the development in similar cases, it is done in the usual way. We immersed a plate 13x18 centimeters into a solution of 15 grains of pyrogallic acid for 2 ozs. 5 drachms of water, to which were added a few drops of a solution of 154 grains of sulphite of soda, in 3 ozs. 2 drachms of water. This is sufficient to give a very intense and complete result. Manufacturers of stops would do well to follow closely the great sensitiveness of gelatine plates by producing stops having great rapidity. Let them guard against being influenced by the too often published idea that 1-100 of a second is sufficient; this is a very great mistake, or at least, it is only true if we are willing to operate at a very great distance in reproducing objects in motion. In our opinion, every instantaneous stop, whilst capable of giving variable degrees of celerity, should give at least 1-500 part of a second.—*Moniteur*.

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### FIGURE STUDIES.

BY ADA S. BALLIN.

THE great fault of photographic portraiture is the want of meaning and the expression in the faces and poses of the subjects; the want of real character, which reduces what ought to be a "speaking likeness"—a representation giving the individuality of the person—into the mere semblance of an expressionless waxwork. The features are there, the anatomical outlines are perfectly clear; but the life and soul are gone. But to put life and soul into a portrait, whether photographic or otherwise, the artist must be a student of human nature, and have the power of drawing out and seizing upon the

personality of each client, which is usually veiled by the tone of polite and calm indifference which in society it is thought "good form" to adopt. One must blow away the ashes, and expose the hidden fires. Talk to a man of his hobby, and animation will kindle in his face. Catch the glow of delight on the face of a collector as he eagerly handles some rare coin or book. Set a chess-player before a board with a difficult problem to make out, and you will get a good expression of earnest thought. Watch a musician when he is listening to the performance of a fine orchestral piece, and you will see a picture of rapt attention. Place a painter before another man's picture if you want a critical expression, and gaze unobserved on a mother looking at her sleeping infant if you would have one of yearning tenderness. All such are familiar, yet useful, figure studies and without acquiring a habit of looking for the best and most characteristic expressions of various persons, no success can be expected in the art of portraiture as it should be, and we must needs content ourselves with the simpering, placid, and "trying to look pleasant" faces, and eminently artificial poses, which now fill our shop windows and our albums.

But, even apart from its importance as an aid to the improvement of general portraiture, the figure study has a value of its own as an object of art, and the photographer—especially the amateur photographer, who has more leisure time and opportunities than the professional—should devote more attention to the production of figure studies and fancy portraits.

Among one's friends there are always a large number who are fond of being photographed, and will joyfully submit to become one's models, and even put themselves to considerable trouble and expense in order to obtain such dresses and accessories as may be required to make up the desired picture. Suppose one has a lady friend of a markedly Eastern type, there will be little difficulty in persuading her to sit for a fancy portrait, and she will join with delight in the search for suitable draperies, mats, and cushions to make her divan, and bits of local coloring to form the proper surroundings. She will construct her dress with enthusiasm, and

when all is ready will assist you to fix up a Liberty drapery for a background, arrange the mats on the ground with the oriental tray bearing sweetmeats and the like, which finds a place in every harem; then she will sink gracefully on her cushions, with the guitar, which you have provided, in her hand, and all you have to do is to take the negative. When one is travelling in the East, or in countries where the hideous costume of modern civilization has not yet prevailed over the native idea of beauty, opportunities for fine figure studies occur without any necessity for making them. Here is a magnificent example taken by a friend of mine in India: A Buddhist priest, with shaven head, and all the insignia of the priesthood, stands like a grand bronze statue, on the steps descending to his temple, of which he bears the large, curiously-shaped key in his hand. In another, we have a group of Moorish women near a fountain, apparently discussing some scandal relating to another women, who stands a little apart, the whole reminding one of the fountain scene in "Faust." In a third picture we come nearer home, and find a group of Welsh fish-women, who seem to be disagreeing over a large creel of their finny wares.

Without going even so far afield, however, and even supposing one gets no lucky shots during one's autumn manœuvres, there is no reason to despair of obtaining interesting pictures. Some persons readily lend themselves to picturesque effects. Here is a young lady whom a simple white cloth thrown over the head, converts into the most devout and charming little nun one ever saw. Of course, one must take merely the head, the eyes of which are modestly cast down, while the veil throws a shadow on the rounded cheeks, or further adaptations of dress will be needful. Here is a young man who is changed by a slouched felt hat and a waterproof cloak artistically thrown over the shoulder, into as handsome a specimen of a Spanish brigand as the most thrilling penny novelette could desire to capture its heroine. Take the same two young people and pose them appropriately, and you can weave a whole love story into your picture.

If one wants to write a popular song, it should contain a sort of story which speaks

for itself, as, for example, in "The Distant Shore," "The Midshipmite," "Nancy Lee," and so on; and in pictorial art the same principles of craving for a strong human interest prevails. One of the favorite pictures of a bygone Royal Academy was the interior of a church, up which a bridal party was slowly moving. The bridegroom was a handsome and stately old gentleman; the bride a young girl, with a pale, set face, dressed in a magnificent gown. From among the spectators in one of the aisles a young man stood out, one hand grasping the top of the pew with nervous energy, his face turned toward the bride with an expression of anguish and despair. The picture was an exceedingly powerful one, and seemed to appeal to the sympathies of all beholders, whose imaginations could readily weave a whole story out of the few materials provided.

Pictures on similar lines are not difficult to obtain; for example, take the young man and maiden above mentioned, place the right hand of the one in the right hand of the other, and tell them that your object is to represent a pair of unavowed lovers parting, "it may be for years, and it may be forever." If they have a grain of imagination between them, they will soon summon up the desired expression of yearning and regret. The scene may be placed equally well in a drawing-room, at the garden-gate, or "'neath the greenwood tree." A good companion picture might be called "At Last," and portray their meeting again under happier circumstances. For the purposes of art, she ought not to object to lay her head on his shoulder, and place her arm as near his neck as his height will allow, while his one arm is about her waist, and the other hand caresses her hair. If they were acting in private theatricals, they would do it without a murmur, so why not to oblige a photographic friend? A fine dramatic effect might be obtained by adding to the last picture the figure of another woman, half-concealed behind a curtain, to which she convulsively clings with one hand, while the other is either advanced toward the unheeding lovers, or placed before her eyes, as if to shut out the sight, which arouses in her such an agony of disappointed affection and jealousy.

Whole stories may be worked out in this way in different scenes, and if one can find suitable models it is a capital plan to get some good novel, such, for example, as "Romola" or "Ivanhoe," and work out the plot in a series of pictures of the chief situations. The dresses can be obtained from a theatrical costumer's or made, if the ladies concerned have the skill, and are willing to give the time and trouble to construct them. In last year's Amateur Photographic Exhibition was a set of five scenes illustrative of Hood's "Song of the Shirt." The idea was a good one, and its execution was not bad, except for the fact that the starving work-girl was far too plump and round for the situation. One ought not to forget that such details are matters of importance. One does not want a Hamlet who appears to answer to the definition of a Bavarian soldier, "a barrel of beer in the morning and a beer barrel in the afternoon," nor an Ophelia such as I have seen in a photograph of the mad scene, with flowers interwoven in neatly combed and brushed hair. That reminds me of a photograph called "The Raft," which I believe was in the same exhibition as those called "The Song of the Shirt." It was very cleverly managed, and represented two men and two women who had been shipwrecked, and were floating desparingly on the raft, the one woman supporting the head of the other, who was apparently dying. The expressions were, on the whole, good, and the poses were good; but the effect was spoiled, to my mind, by the well-groomed look of the women's hair, which hung about them neat and straight, instead of in the disorder which one would imagine to prevail under the circumstances. Does a woman's love of appearances carry her so far that when, clinging to a raft, nearly starving, in hourly expectation of death, *and without a looking-glass*, she will carefully comb and brush her hair, and "anoint it with fresh oil?" The photographer who wishes to make effective and artistic pictures must keep a sharp eye on all the details, and have a deep respect for probabilities.

The appearance of some people may suggest happy effects; for example, a young lady I know, who is rather thin and plain-

looking, got herself up in proper style as a poor flower-girl, with ragged shawl and battered bonnet, and was photographed as if in the open street, offering flowers for sale to her brother and sister, who were stylishly dressed in ordinary walking costume. The picture was taken by another relative, and is a very effective one. I saw a very curious and suggestive fancy photograph a few days ago in the studio of M. Bertin, at Brighton. It represented a severely-furnished room, with the figure of a young Catholic priest asleep in an old oak chair. On the small oaken table before him is an ivory crucifix, toward which his right hand, which lies on the table, is outstretched. The head, which falls rather backward, is of a strictly classical type, with finely-chiselled features, the face being pale and thin, as if from ascetic life. Hovering near, however, is the white and shadowy outline of the form of a beautiful woman, which suggests that the dream of the religious fanatic before us touches upon that to him unholy subject—human love. The whole picture is strikingly full of force and poetic imagination; and, on asking M. Bertin, I found that it was from the life, the young priest being the nephew of the photographer, and the woman's form a reproduction of that of his daughter, herself a successful photographic artist.

When we consider the large number of our relations, friends, and acquaintances, a wide vista of photographic possibilities rises before us, even without calling in the aid of paid models. A face need not to be beautiful to make an interesting picture; and an absolutely ugly one, if its character is brought out, often makes a successful picture. A wrinkled old woman, with swollen and rheumatic finger-joints, bending over her knitting; a rough old sailor spelling out a newspaper, or smoking a dirty pipe; a dog-fancier teaching a terrier to beg—all these are objects of interest; and if one is favored with such charming models as pretty children, the variety of pleasant changes becomes greater. We can have Bessie impatiently peering out beneath grandpa's spectacles and cap; Jack taking a surreptitious whiff at grandpa's pipe; and one-year old baby holding up its empty spoon as it sits before its emptied breakfast-cup—

"All gone, more to-morrow," would be an appropriate title for that last. Or *It*, who "is full of wickedness, though only aged one," may be represented pushing out the eyes of little sister's doll. Suggestions which naturally arise when we look at the models ready to our hands are the most desirable, for in figure studies, as in the ordinary portrait, naturalness is a great desideratum; but practice, and the habit of attending to all details, enable us to attain a great pitch of perfection in this respect, and the cultivation of this branch of art is one which will lead to the most fruitful and happy results.—*The Camera*.

[Translated for *The Philadelphia Photographer*.]

## NEW TRANSFERRING PROCESS FOR PHOTOZINCGRAPHY.

BY MAX JAFFI AND AUGUST ALBERT.

IN photozincography, there are different processes for putting the picture to be etched upon the plate, and for giving it the covering necessary for the etching. These different methods may be divided into two classes:

A. The direct copying upon the zinc plate.

B. The transference of the picture by means of reprint.

The direct copying is done:

1. According to the method invented by the elder Niepce—where the plate is covered with asphalt solution, allowed to dry, copied, and then separates (literally "loosens"), the asphalt not affected by the light.

2. Where the zinc plate is covered with chrome white of egg, and blackened after the copying in the same way as photolithographic paper.

3. A new process given by Vidal in Paris—a combination, in a certain measure, of both the previous methods—consists in first covering the zinc plate with asphalt solution and the dried asphalt layer with chrome white of egg solution. The latter is (as in 2) washed after the copying with cold water, and then the asphalt loosened so far as it is protected by the white of egg from the dissolving material, and thus the

picture remains on the plate in asphalt and white of egg. The time of exposure in this instance should be shorter than with asphalt alone.

The reprint process is done:

1. Where the photolithographic copy is covered with fluid asphalt, and then developed, as if the copy were treated with reprint color, and then the picture printed over upon the previously warmed zinc plate.

2. According to the method known here as stone print (lithographic print) in which the photolithographic copy, covered with reprint dye, is reprinted upon the zinc plate—the reprint strengthened by rubbing in print color, and by dusting with asphalt and blending this with the reprint color gives to the picture the necessary covering.

We will now give, in brief, the advantages and disadvantages of these processes mentioned.

A 1. The oldest indisputably gives, to-day, the finest results, only the copying is, in spite of the increased sensitiveness of the asphalt, always very tedious, also reversed negatives are needed, and, finally, it is difficult to place more figures together upon a plate, clearly circumstances which explain the little regard in which the practitioner holds this process.

A 2. Is according to our observations very uncertain.

Concerning A 3, we have not yet had an opportunity to form a proper idea. We fear, however, from its likeness to A 2, that it cannot be particularly recommended for practice.

B 1 we must, from our experience, denote as rather difficult.

The most extensively used process is without doubt B 2. Yet this also has its difficulties. The so-called "crushing" takes place in the reprint, and in this case, the fine lines and points of the drawing appear broad and fringed. The rubbing (or strengthening) of the reprint with printing color, particularly upon stone without any particular difficulty, is always a matter of some trouble on metal. If then the expert practitioner sometimes fails in making a reprint, how many dangers attend the less practised; if one rubs too little, then it fails

in being covered, if too much, the drawing is thick and robbed of its character; it also happens sometimes that separate spots of the drawing disappear with the rubbing, while, on the other hand, again, many empty places between the lines become filled with color (the so-called "smutting"), yet if all these manipulations are undertaken with the greatest care, yet one thing cannot be avoided, and this is the slight extension of lines and points which makes itself distinctly apparent in very fine drawings, as also large diminutions in etchings in half toned methods, so that the result is far behind that obtained by direct copying.

After this introduction, which we considered necessary to set the matter in a right light before the reader, we will now give a description of a reprint process, which is easy and safe to manage, and furnishes such fine reprints that they very nearly approach in excellence those directly copied upon asphalt.

Concerning the requisite materials, care should be taken that the photolithographic paper used is thin and hard, and not *thick* or soft. It should be covered with a greasy reprint dye-color; this latter should be so much diluted with pure nut or poppy-oil that it can be easily wiped off with the finger on the blackened, dry copy.

Asphalt powder is to be made ready in the following way: Ten parts Syrian asphalt, one part bees-wax, and two and one-half parts colophony (rosin), melted together and, when cool, powdered.

In a photolithographic paper which is to be a success and must, therefore, show the requisite hardness, the chrome bath must have a temperature of 15° to 17° R; the place also, where the blackening is done, must be tempered.

The blackening and developing of the copies take place in the following way:

The reprint color must be spread upon a dye-stone, with an ordinary lithographic leather roller (and this color, as before intimated, must be "easy"), then a velvet roller (lithographic roller, covered with silk-velvet) is used to rub on the dye-stone, and to roll over the dry copy, for which purpose it is laid with its back on a copy-plate, until it (the copy) is covered uniformly

with a medium gray tone; then it is wholly immersed in clear water—so as to avoid air-blisters. After eight or ten minutes it is taken out of the water, laid with its back upon the copy-plate, and the water pressed out of the picture side by suction paper; this is done best by rolling for some time an old lithographic roller, free from color, over the blotting-paper.

In this method it is well to be careful that the absorbing paper contains no folds lest the picture-side suffer injury. The half-dry copy is now rolled with the color-holding velvet roller; the drawing gradually appears, for the velvet roller takes away the color again from the parts not copied. If the drawing shows rather distinctly after considerable rolling, then it is only necessary to use a soft, fine sponge—washed clean in water, to remove the color which still adheres to the uncopied parts—pressing the sponge down on it with a circular motion. It must be borne in mind that even the most delicate-appearing tone on the uncopied parts must be completely removed; it would be well for the beginners to use the magnifying glass in order to see if any color adheres to the uncopied parts before unfastening the copies for drying. The velvet roller can be kept in the dye without cleaning it, and put away in a clean place rolled up in silk paper. The completely developed copies should be laid between dry, clean absorbing paper, and thus any water still contained in them removed by light pressure, then they are fastened on to boards with pin-tags and allowed to dry of their own will in a moderately warm, dustless, and well-ventilated room. The copies as soon as they are completely dry can be instantly subjected to the further treatment; however, they can be kept as long, in fact, as the color is easily removed; in order to try this, it is only necessary to scratch a few lines on the negative outside the drawing, before the copying, and they will be copied with it and will receive the color.

When dry, the copy is dusted with the before-mentioned asphalt powder, and any that is superfluous removed with a fine cotton rag; then the copy, picture side down, is gently warmed over a spirit-lamp.



Too strong a heat makes the reprint heavy—a little practice soon enables one to get this right. (The copies can be kept a long time in this condition). Now the copy is slowly put through a concentrated alum-bath, washed in clean water and then, in order to have the moisture uniformly distributed, it is laid for some minutes between wet suction paper.

The zinc plate is warmed to about 40° R.—just as one is accustomed to do with negative plates before covering with varnish. Then the copies are taken out of the bibulous paper and laid on the zinc plate. The reprinting takes place in the customary manner, beginning with gentle tension and increasing the strength in each passage. When a sufficiently strong pressure is obtained, a sponge dipped in cold water is used to moisten the back of the copy, the plate is then warmed again to about 40° R., and then passed twice through the press (once backward and once forward). After this the plate is laid in cold water for from one-half to one minute, and then the copies are lifted off.

As many copies as you please can be reprinted at once, yet it would be advisable, in a large number, to lay the copies as they come out from between the bibulous paper on the zinc plate, without previously warming the latter, to draw the plate with the copies, twice with each tension, through the press, then to moisten the copies with the sponge dipped in cold water, and then first to warm the plate while the further passage through the press with gradually increased tension, the repeated moistening of the copies and warming of the plate should take place as above.

If all these manipulations have been done with care, there will remain no trace of color—or very little—on the impressions, while the drawing shows in deep black, glossy and very strong covering. After the customary clipping and protecting on the back, the plate is ready for the first etching.—*Correspondenz* (Vienna).

DUBLIN EXHIBITION.—In October next a photographic exhibition will take place at Dublin. It will be held in the large galleries of the Academy of Arts.

## THE INTERNATIONAL EXHIBITION AT GLASGOW.

### REGULATIONS AS TO THE FINE ARTS AND PHOTOGRAPHIC SECTION.

THE Glasgow Exhibition will be opened in May, 1888, and will remain open until the end of October in that year; and the fine art galleries will be ten in number, occupying an area equal to 3200 square yards, and affording about 2450 lineal feet of hanging space.

The entire exhibition will be watched day and night by police and firemen. Special attention will be given to the safety of the fine art galleries. Electric light will be used throughout the exhibition, and the mode of its application in the fine arts galleries will obviate the risks incidental, under other conditions, to the use of artificial lights.

An Art Union will be organized in connection with the Fine Arts Sale Section, under the regulations of the Board of Trade. The price of tickets will be one shilling each, and the total receipts, after deducting necessary expenses, will be divided into prizes, to be selected from works exhibited in the Fine Arts Sale Section. The drawing for, and selection of prizes will take place on a day to be fixed by the committee prior to the close of the exhibition.

The photographic section will be international in character, and contributions will be sought from the leading studios in Europe and America. The section will comprise illustrations of photography under the following heads: 1. Portraiture, landscape photographs, architecture. 2. Reproductions of pictures, drawings, etchings, and engravings. 4. Photolithographs, photogravures, phototypy, photo-block printing. 4. Illustrations of books. 5. Transparencies and enamels. All pictures sent must be framed and glazed, and must be delivered at the exhibition buildings, Kelvingrove Park, Glasgow, during the week ending March 24, 1888. All exhibits, unless such as are specially solicited by the Committee, must be sent carriage paid, or delivered free at the exhibition buildings. The committee will undertake to unpack and repack such, and store the cases at a charge of 1s. 6d. each frame. Any convenient number of photo-

graphs may be mounted in a single frame. All frames must be rectangular in form without projecting corners. Oxford frames will not be accepted. At the back of each frame must be written the name and address of the exhibitor, the title of the picture, the process by which it is produced, and (if for sale) the price. This information must be repeated on a label attached by a spring to the top of the frame, so as to hang over in front. An advice form, filled in with the name and address of the artist in full, the titles of the works, and their prices (if for sale), must accompany all works sent in. Labels and advice forms will be supplied on application to the Secretary of the Fine Arts Section.

The following are the regulations for the photographic section; All works will be subject to the approval of the committee, whose decision shall be final. Arrangements will be made for the sale of pictures and duplicates, on which a commission of five per cent. on the catalogue price will be charged, whether the sale is made by the artist or by the exhibition. At the close of the exhibition, works upon which commission is due, or upon which any expenditure has been incurred, will be delivered up only on payment of such sum or sums. Sales effected by the artist should be intimated to the Secretary of the Fine Arts Section at once, otherwise a sale made by the committee will be held to take precedence of, and supersede, the sale made by the artist. While the executive council will endeavor to take every care of the photographs sent for exhibition, they will not be responsible for injury or loss to unsolicited contributions, from any cause whatsoever, arising either in transit to or from, or during the currency of the exhibition.

The following have agreed to act as corresponding members, and to give information and assistance to intending exhibitors:

Paris, Leon Vidal.

Vienna, Dr. J. M. Eder.

Berlin, Dr. H. W. Vogel.

New York, F. C. Beach.

Philadelphia, Fred. E. Ives.

London, T. Bolas, editor of *Photographic News*, and J. Traill Taylor, editor of *British Journal of Photography*.

[Translated for the Philadelphia Photographer.]

## ENAMELLING ON ENGRAVED PLATES. ITS APPLICATION TO PRINTS ON ALBUMENIZED PAPER.

BY LEON VIDAL.

IN a preceding article we pointed out an enamelling process suitable for photographic images printed on Eastman paper and platinum paper. This same process can be applied to prints on albumenized paper with equal facility. We will take up the complete description of the process which, since, we have studied with more care. We have been able to make it very practical, and if our instructions are carefully followed, it can be mastered without running the risk of losing a single print.

### *Impressions on Albumenized Paper.*

The paper used to make the mask should be the same as that used for the prints. It is necessary to remark if the paper has been cut lengthwise or breadthwise, in order to have the sensitized paper cut in the same manner. Here is the way the mask is obtained: A sheet of sensitized paper is immersed in water long enough to completely stretch it, then the plate of engraved glass is placed in the same dish, and removed with the paper adhering to it. The excess of water and the air-bubbles are removed by means of a scraper, and the paper is then immediately exposed to the luminous action. The engraved glass forms a sort of cliché whose image imprints itself with sufficient sharpness on the sensitized paper. After a short exposure the paper is removed from the plate and placed to dry, away from the light. When it is completely dry the part corresponding to the reversed place for the image is cut out with care, and the mask is then placed on a pressure-frame to be exposed to direct sunlight, if possible, so as to blacken it and render it as opaque as possible. This being done, the mask is ready for use and may serve in making as many as might be wanted by using it as a cliché instead of the engraved glass. In this last case it is no longer necessary to previously wet the paper. This previous wetting is necessary on account of the stretching of

the prints to be enamelled, and which should be in the same conditions as those of the paper having served to make the mask. Thanks to this means, the coincidence between the dimension of the image and that of the space reserved for it on the engraved glass will always be perfect. The mask is placed on the negative in immediate contact with the side on which is the image and the sensitized paper superposed; the dimension of this last is maintained equal to that of the engraved glass. The exposure is made in the usual way, the print being made a little stronger because when enamelled it has a tendency to weaken. After all the usual operations, toning, fixing, washing, etc., a solution of very white gelatine at ten per cent., filtered through a cloth is passed over each print. To apply this gelatine nothing is easier. The print, on coming from the washing water, is placed on a plate, care being taken to allow the right edge and the lower edge to slightly overlap. The greater part of the water is allowed to drain, then is poured in two successive operations over the entire surface of the paper, the above-mentioned solution which is received into another recipient than that containing the new solution. In this way air-bubbles and impurities are avoided. It is sufficient to keep the solution tepid over the water bath in order to have it sufficiently fluid. What remains of the fluid is utilized afterward, after concentration, by the addition of a little gelatine and filtration. The gelatinized print is suspended by the two corners by means of pins and allowed to dry, to be afterward taken up and placed on the engraved glass when the time comes for making the operation.

#### *Isolating Preparation of the Engraved Glass*

Talc is not always sufficient, and if the operation is often successful with the use of this isolating powder, success cannot be looked upon as absolutely certain. It is better, therefore, to have recourse to an isolating process giving every guarantee of security. Here is the one we recommend, because it has given us every time excellent results: Dissolve thirty-one grains of white wax in three fluid-ounce three drachms of mineral essence. A tuft of cotton soaked in

this solution is rubbed over the entire surface of the engraved glass. After evaporation of the essence, wipe with a soft rag all the surface, and especially the polished part, from which every trace of the wax is to be removed. This being done, rub the whole with talc of which every visible trace is to be removed afterward with a soft brush.

The plate is now ready to receive the image which is applied to it in water, avoiding air-bubbles. Then the whole being out of the water, slide the image over the plate in order to bring it exactly in its place in the central polished part. Then place between bibulous paper and use the squeegee, care being taken afterward to verify if the image has not slipped. The print is now backed with strong cardboard, previously cut of the right size, and immersed for about half an hour in a dish filled with water. Dried with the aid of bibulous paper, it is coated with starch paste and placed on the back of the image. Before abandoning the whole to spontaneous desiccation a final precaution is necessary. As the drying proceeds the paper detaches itself from the plate, and sometimes in such an irregular manner as to leave behind very visible traces showing lines on the brilliant portion. To avoid this place the side on which is the print against a sheet of dampened paper of which the edges are brought over the plate as if to wrap it. The plate is then placed on a flat surface on the side over which the edges are turned. This is sufficient to maintain the prints in contact with the engraved glass during desiccation, and to avoid successive raisings which produce the lines in question. This precaution is very easy to take and the same sheets of paper, adapted to this purpose, may be used indefinitely. When engraved plates are used having rather bold reliefs, the simple gelatinizing mentioned above is not sufficient; it is then necessary to cover the plate, coated with the isolator, with a sheet of white gelatine. For this purpose, cut the gelatine into sheets of the proper size, allowing for great distention; it is then placed in clean water in which is already the engraved glass. To obtain more suppleness it is better to use, instead of pure water, a mixture of water, alcohol, and

glycerine. When the sheet of gelatine has become soft it is carefully removed with the plate; the interposed water is allowed to drain gently, and, finally, the plate is placed on one of its angles and inclined so that the water may run off by degrees. The drying should have commenced before placing the print on the gelatine, which is done by plunging again the whole in very clean, filtered water. The subsequent operations are the same as those mentioned above.

We have here a very complete enamelling process, the result of serious study and with which very beautiful results can be obtained it we have at hand plates engraved with very artistic surroundings.—*Moniteur*.

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### PHOTO-SCULPTURE.

At the present moment there seems to be a tendency to revive that so-called photo-sculpture which was one of the topics of conversation nearly a quarter of a century since. It is not the custom for the sculptor of the present day to commence work directly upon the marble, the first step being to build up a model (on a somewhat enlarged scale) in plastic clay. From this model, which, in drying, contracts to the required size, the marble is roughed out by a system of measuring and mechanical cutting, after which the work is done by hand-tools—first used by a subordinate artist known as a statuary, and finally by the sculptor who constructed the clay model. In the so-called photo-sculpture, neither marble nor clay is directly modelled by a photographic agency, but the photographic outline is used as a guide in fashioning a correct outline to the clay of which the original model is made.

The photographic guides for photo-sculpture, as introduced by Willème, in 1864, and as practised during the following year at Clandet's studio in Regent Street, were ordinarily twenty-four in number, and all the exposures were made simultaneously upon a sitter who was seated with a circular battery of twenty-four cameras directed upon him.

Each of the resulting photographs corresponds in its outline to the vertical section of the required bust in one position, and by

trimming the photographs so as to obtain cardboard silhouettes, and using each in succession as a guide in cutting out the clay—the block being turned one twenty-fourth of a circle after each operation—it is easy to see how a roughed out clay model of the sitter could readily be obtained. Ordinarily, however, the original photographs were far too small to be of direct service unless the clay was attached to an enlarging arm of a pentagraph or a pentagraphic machine, but sometimes the photographs were enlarged, and the pentagraph was used also.

An article in the *Times*, published during January, 1865, and referring to the cutting out of the clay by the pentagraph arrangement, says:

“Four vertical sections—say figures 6, 12, 18, and 24—representing the four angles, which the cutter makes as rapidly as the pencil follows the outline of the drawing, are quite sufficient to give a rough sketch of the figure on clay that is at once recognizable by any friend of the sitter. When all the twenty-four outlines have been transferred to the clay, and the more delicate details on the flat have been indicated, the mechanical part of the process is complete, and the artist takes up and perfects the work. Of course, upon his skill the final finish and delicacy of the statuette depends. It is not pretended that the mechanical process we have described can make a perfect statuette, instinct with life and feeling. All it assumes to do is to give the modeller perfectly faithful outlines of nature; his mind or fancy must finally build upon this foundation and put Promethean fire into the work. Copies are taken, of course, in the ordinary manner, the new process only taking the place of the modeller's hand in giving form to the clay. We do not suppose that statuettes produced in this manner will ever become popular, as their cost will put them beyond the reach of the masses. Small busts are, however, sold in Paris as low as a guinea each, and, doubtless, the prices will fall with increased facility of production, which is certain to follow upon an increased demand for them.”

Photo-sculpture, although many had great hope from it, was not a commercial success. The time was probably not ripe for it; and

the difficulty of serving twenty-four cameras with wet plates in hot weather was alone almost enough to damp the ardor of any photographer who might think of photo-sculpture. Now the case is different, as with twenty-four cameras brought into simultaneous action by an electric or pneumatic uncovering of the lens, one may be reasonably sure of securing all the outlines with certainty, and of obtaining such photographic detail as shall guide the modeller in finishing the clay as cut by the help of the photographic outlines. Renewed attention will probably be given to photo-sculpture, and it has recently been the subject of discussion at the meetings of the Photographic Society of France.

We would suggest that with modern rapid plates it may be better to place the sitter and his chair on a divided turn-table, and to make the exposures with one camera, than to use twenty-four separate instruments; or the turn-table may be used with, say, four cameras, in which case six shifts of the turn-table would be required to produce the twenty-four photographs.

We can, however, leave such photographic points to our readers, who are quite competent to work out the details of manipulation; but in order to give them some notion as to how the sculptor manipulates his clay, we have induced Albert Toft the now eminent sculptor, who so successfully modelled the President of the Photographic Society, to write us an article on "Building up a Bust," and this will prove of great service to such readers as may wish to exercise themselves in photo-sculpture. It may also be useful to quote a provisional specification lodged by David Gay, in 1865. Mr. Gay says:

This invention relates to an improved method of treating photographic portraits when intended to be employed for obtaining sculptured models therefrom, and consists, first, in cutting the material on which the portrait is taken or printed, as may be found most desirable, and in using the marginal or outer portions of the materials as templates, which I propose to arrange and operate with in the following manner: For example, upon a circular table or bed plate, I arrange or dispose, say, a dozen

blocks capable of sliding in radical grooves, by means of screws or otherwise, toward and from the centre of the circular table aforesaid, and in each of said blocks I fix an upright rod with clips affixed thereto for holding the before-mentioned templates; I also mount the aforesaid circular on an upright pivot, the principal length whereof is formed square, and the extremities round. The upper end of said pivot carries a loose collar with slots about its periphery to receive and hold steady the several templates aforesaid. The material to be sculptured is placed in plastic state on the aforesaid upright pivot, and said plastic material roughly shaped by hand previous to operating thereon by the several templates, as follows: Having obtained, by any suitable means, the requisite number of photographic pictures from different points of view of the person or object to be sculptured, I then proceed to cut out the picture; for example, suppose it be a profile, I carefully cut along the outline of the forehead, nose, mouth, and chin, and use the outer divided portion of the material as a template, which I place in the clips of one of the upright rods aforesaid, and in this manner I proceed with each different photographed position of the person or object to be sculptured, and having fixed all the templates thus obtained in proper position, I commence to operate therewith, as follows: I take first that template containing the most prominent outlines, and pushing it into contact with the plastic material aforesaid, hold this template steady with one hand, and with the other move the plastic material partly round backward and forward until the template has scraped the material at this part to the shape of the template, or partly so, and in like manner I proceed successively with all the other templates, until I bring their edges close together in the collar that supports them, after which the sculptured model may be finished by hand; and where several copies are required, I take a mould thereof by any of the well-known means, and pour plastic material therein in the manner commonly practised of moulding objects in plastic material.

An article on "Photo-Sculpture," by M. Lazard, will be found on page 627,

but the information it gives is not very detailed.—*Photographic News.*

### PERTAINING TO THE



EDITOR PHILA. PHOTO.

MY DEAR SIR: I notice a communication going the rounds of the photographic press, signed by H. S. Bellsmith, Sec. P. A. of A., containing rules governing the disposition of the Blair Cup to be competed for next year; also asking for suggestions from "interested parties." I beg leave to suggest that he call on President-elect Decker, and his associate officers, probably they can give him some points in relation to the award of prizes for the next convention.

Very truly yours,

H. McMICHAEL.

BUFFALO, N. Y., Sept. 28, 1887.

### AN OPEN LETTER TO PRESIDENT DECKER.

MR. E. DECKER, PRESIDENT P. A. OF A.

At the last Convention in Chicago the idea was carried forward of *selecting the subject to be illustrated by means of photography, for competition of the prizes, at the next Convention at Minneapolis.*

THE PHILADELPHIA PHOTOGRAPHER of October 1st, announces to the fraternity the rules and conditions governing competitions for the Blair Cup, adopted by the Executive Committee, from which I read as follows:

The award shall be decided by a Committee of three, to be appointed by the Executive Committee.

We only ask, why should the "judges" be selected by the Executive Committee?

This alone will create dissatisfaction and opposition I should think.

"The Executive Committee shall *select a subject to be illustrated, and no other picture shall be considered eligible.*"

The adoption of such rules changes entirely the first conditions under which Mr. Landy won the Cup, and puts his competitors of the second year in a less favorable situation.

I am convinced Mr. Landy himself would object to fight his adversary with unequal arms to his advantage. Why not leave the first conditions and rules unchanged?

This rule is a beginning of the realization of the idea brought forward for the competing pictures at next year's convention.

This is the most dangerous step the Executive Committee could take, and will create a feeling between the members of our Association which may make Minneapolis the grave of the P. A. of A.

Don't you see that by adopting a measure, as for instance, requiring the competing pictures to illustrate Shakespeare's dramas, or any other poetical subject, and no other pictures to be considered eligible, you favor the photographers in large cities, and you take away all chances of the poor but rising photographer of the country to show his work. What has poesy to do with photography?

Why try to put the individual genius in a bird cage, if not to prevent it from growing, and to suffocate it.

From where shall the country photographer take his subjects to illustrate your pretentious choice? Will he ever find among farming people subjects to suit the execution of immortal poesy?

The photographers of large cities have a choice between favored actors and actresses which will enable them to carry away the medals.

Would that not be an injustice?

Why not give the genius of everybody free swing? You cannot force genius into a person or an individual, nor guide an individual genius into the way you would like to see him follow.

Then what good will it do to photography in general? Perhaps to show that the world's poets can be illustrated by photog-

raphy, or already existing illustrations of poets can be copied from life by photography.

Is this the object of our Association? I doubt if either you or the Executive Committee would answer this question affirmatively.

Such rules will only guide our ship, P. A. of A., into a storm where she is bound to sink.

Don't let your conscience be loaded with such a crime.

I know this is by far not your intention, and you are just as willing as every other member of the Association to raise the standard of American photography to real art; to merit the name which it gets only occasionally by some lovely productions. But your zeal for the welfare of our Association may mislead you.

There is a much easier way to arrive at the same result without dissatisfying any of the profession, and giving *no chance* whatever for grumbling.

Let there be prize medals, for they stimulate the photographers, and are valuable in the minds of the great public.

Soldiers in this country get promotions for their bravery, which makes them valuable to their contemporaries. It is but right to promote our braves by prizes or medals; our annual gatherings would otherwise soon become monotonous and deserted. The way to raise photography to a real art is to introduce the genius of the fraternity in *composition pictures from every day life*. Let everybody exercise brains and knowledge to create a composition picture as painters do.

Illustrate by photography any scene of home life, tales or stories, groups taken in different attitudes, as seen in every day life; something like Landy's "Monk," Guerin's "Gambler with the empty pockets," Straus's "Boy catching flies," etc. There is an immense field for every brain and for every genius to try himself.

Create pictures which tell their own story, as painters do. This will raise ambition in photographers, and guide our new but strong vessel right into the harbor of real art, ahead of all foreign countries, for don't you forget, our enterprising temper and

quick acting nature, assures us a quick, thorough success.

Let there be two kinds of prizes, one for composition pictures and one for regular portrait work, to keep up the standard of our regular photographers.

This will be enough to keep awake all photographers of less ambitious nature, as well as those who excel all the time by marching in the front line of the battle.

Then satisfaction will be guaranteed to everybody.

J. HEGYESSY,

Assistant Operator of F. W. Guerin.

St. Louis, Sept. 27, 1887.

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## PHOTO-SCULPTURE.

BY M. LAZARD.\*

I TAKE two photographs of the subject at a horizontal angle of 45°, and the subject is lighted by light coming from a small surface, and the rays must traverse a frame having stretched upon it some threads which are quite straight and uniform. This frame is placed quite square and vertical in front of the model, and it is necessary that the sensitive plates should also be vertical.

The negatives obtained are placed quite vertically in a projection apparatus, and are projected upon a screen placed vertically, but inclined at a horizontal angle of 45°.

By the aid of one of the points of a special pentagraph the outline of the projection is followed, while the other point cuts the outline on the plastic matter. When the profile is cut, the required movement is given to the support on which is placed the plastic material.

When one profile is completed, the next is cut in the same way, taking care to so adjust the projection apparatus as to obtain register with the profile already cut.

It is possible to model the whole figure by the same method; but as the modelling of the draped figure does not require extreme exactness, it is sometimes easier to do the work by hand, simply guided by photographs, or by the presence of the subject.

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\* Abstracted from a communication to the Photographic Society of France.

### OUR PICTURE.

At least every one of our readers who attended the Chicago Exhibition will welcome the fine picture that embellishes our issue of to-day. It formed one of the attractions of the splendid exhibit of Mr. Oscar Suck, of Karlsruhe, Germany, and represents a scene on "Market Day" in that quaint old town. It is as full of æsthetic suggestion and merit as it can be. Here are over fifty unconscious people caught by the agile camera while pursuing their avocations, under full swing, not one of them giving evidence that the near presence of the photographer was suspected. The aristocratic old gent in the straw hat; the ladies carrying their own market-baskets; the old horse plodding across the centre; the soldier on his morning round; the groups; processions; the bargain-makers; market merchants; pedestrians, and people of all shapes and sizes, prove how alert the lens was, while everything, from the woman counting out her "wechsel" in the foreground—from the collection of "market stuff" beyond, to the line of dog garbage-carts which stand in the far distance with their poles high in the air, like crucifixes in a cemetery, waiting to be called into service, show the exquisite sharpness and lovely detail which one covets when making such views. And the quaint costumes, varied attitudes, and natural compositions—what *subjects* they make. No one could see this last any more quickly than our talented artist, who, at Chicago, together with his "Market Day," exhibited nearly one hundred of his unrivalled costume pictures, many of the models for which we think we discover in the assortment now presented.

A mosaic of some of these last named will be given as "Our Picture" early in the new year. Our readers will recollect that we have already given two other examples of Mr. Suck's work this year—a mosaic of portraits, March 5th (with description and engravings of his studio), and a cabinet study May 7th, direct from negatives sent us by him. Further than this, we have one more example, perhaps for our next issue, a reproduction by the Ives process from one of Mr. Suck's most artistic studies.

The "Market Day" should give the artistically studious a fine zest for the timely papers on "Figure Studies," by Ada S. Ballin, and "Artistic Photography," by W. H. Wheeler, which we have culled from our foreign contemporaries. Our technically disposed readers will find much profit in studying the points given by Mr. Suck in his generous letter, which follows:

ESTEEMED SIR: Yesterday I sent you an instantaneous cliché for the use of your journal. I would advise you to use the whole plate, if it is not too large. The instrument used for taking the instantaneous pictures was an objective from Paris, designed by W. F. Beneckendorff, Berlin—a portrait apalanat, Series A, No. 5, was used, and, as you see, a sharp picture to the edges was obtained. I have at present, from the same makers, a new and light strong instrument for instantaneous pictures, which works quicker, and does far larger pictures than this, although it will furnish negatives this size also. It is Series A, No. 6. The instantaneous shutter I employed is Aurcy & Trury's, Geneva, Switzerland. I took all the pictures in  $\frac{1}{300}$ th of a second, and developed with soda and sulphuric acid and pyrogal, with which I do most of my work. The plates I make for our use are only made for such instantaneous pictures up to 21° Warnerke.

This month I have taken various skating pictures which, notwithstanding there was little or no sun, were very good. These, as well as some very pretty winter landscapes, with trees covered with hoar-frost, besides some other matter, are to go to you as soon as I finish up those destined for the Stuttgart exhibition, many of which are already colored. I will also send you instantaneous pictures of soldiers going through the manœuvres of battle, which I took two years ago. These pictures were made under great difficulties, and were the first of the kind I ever took. I will send you from 250 to 300 pictures altogether, among which about 80 will be genre pictures, done in the open air.

I work a great deal with orthochromatic plates, and use chinolin and cyanin-agalin, or erythrosin, which latter is the best color-sensitive plate which I know, since it yields



the warm tones, such as yellow, red-brown, and green, the best. I will send you copies of the same tone with ordinary emulsion, and you will see the difference. Lately I have been occupied with pictures of interiors, which were lighted with magnesium light—still the magnesium light can be used only for brightening the shadows. There is some difficulty attending work with this light, on account of the smoke it issues in burning, and it is not always possible to have a sufficient number of tubes (or flues) to carry it off. In most cases of this kind I supply a remedy by using a looking-glass for brightening the shadows, and thus not so many false lights are introduced into the picture as with magnesium.

I have, indeed, very little time for writing, being a very busy man, and my portrait business takes up my time from early morning to late at night. If I send you a large number of photos and you should chance to have an exhibition, perhaps some among them might be found interesting.

Your journal is received, many thanks.

Very truly yours,

OSCAR SUCK.

KARLSRUHE.

Mr. Suck regrets that no response was made by Americans this year to the call for exhibits at the Stuttgart Exhibition. He has done much to promote exchanges between the two countries, and hopes for better relations between us in time.

The exquisite phototype prints from Mr. Suck's negatives were made by Mr. F. Gutekunst, Philadelphia, and are simply unequalled anywhere in the world. We do not see how mechanical printing in this way can go further or higher.

## ORTHOCHROMATIC PHOTOGRAPHY.

BY C. H. BOTHAMLEY, F.I.C., F.C.S.

Continued from Page 497.

*General Remarks on Bath Processes.*—It will be observed that the formulæ given differ mainly in the proportion of dye-stuff which they contain, and that in some instances alcoholic solutions are used, whilst in most cases aqueous solutions are em-

ployed. Preference should be given to aqueous solutions, and alcoholic solutions should be avoided as far as possible, since plates prepared with the latter solution are much more liable to show streaks, spots, and similar defects. Care should always be taken that the solutions are perfectly clear, and they should be filtered if necessary, since if the liquid contains any undissolved particles, the latter will settle on the plates and produce spots. After the bathed plates have been allowed to drain, and before they are left to dry, they should be placed for a few seconds with their lower edge on clean blotting-paper in order to remove the ridge of solution which collects along the bottom edge of the plate. Bathed plates must be dried in absolute darkness. A drying cupboard is not essential, provided that the room is perfectly dark, and each plate may conveniently be supported, face downward, on two nails driven into the wall in the manner described by Sutcliffe.\* Plates treated with an ammoniacal solution of eosin, erythrosin, etc., will keep for several weeks, and can be packed with *papier Joseph* between them, like ordinary plates. Plates prepared with cyanin will not keep for longer than a few days.

It has previously been explained that the proportion of dye used is of the greatest importance, and that an excess of dye diminishes both the general and the special sensitiveness. The author has found that when erythrosin is used, both Eder's formula and Mallman and Scolik's formula give plates which seem to be about equally sensitive to yellow, but the plates prepared by the latter formula, which contains a greater proportion of the dye, gave a somewhat better rendering of the green and orange.

It is not advisable, as a rule, to apply any of the ammoniacal baths to the most sensitive plates obtainable. Such plates are usually very near the fogging point, and treatment with the ammoniacal liquids will frequently carry them past this point, rendering it extremely difficult, if not impossible, to obtain clear negatives. The results are better and more certain if plates of medium sensitiveness are selected, and since

\* Year-Book of Photography, 1883, p. 62.

the ammoniacal baths increase the rapidity of the plates by two or three times, it is evident that after treatment such plates will be quite sensitive enough for all ordinary purposes, even when a yellow screen is employed. The author uses chiefly the plates known respectively as Paget XXX, and Wratten's Ordinary, and obtains equally good results with either brand, though the former are, of course, considerably more rapid than the latter.

Some difficulty arises from the fact that commercial dyes vary in their sensitizing action; and, moreover, the same dye is met with under different names, and different dyes are known by somewhat similar names. Usually dyes are distinguished by their names, such as eosin, erythrosin, rose Bengal, etc., and different shades of the same dye are distinguished by letters or numbers, as eosin J, eosin S G F, erythrosin I, erythrosin extra, etc. Generally J or G denotes a yellow shade, B a blue shade of the dye. N commonly denotes a nitro-derivative, and it is advisable to bear in mind that nitro-derivatives are usually very poor sensitizers.

The particular letters used to denote a given shade vary with different makers. The Badisch Anilin and Soda Fabric; Meister, Lucius, and Bruning; The Society of Chemical Industry, Basle; L. Casella & Co.; P. Monnet & Co.; A. Poirrier & Co.; and the Actien Gesellschaft Farben Fabrik, Berlin, may be mentioned as the principal manufacturers of coal-tar colors. Erythrosin is the most generally useful dye, and the author can recommend the erythrosin I of the Badisch Anilin and Soda Fabrik, or the erythrosin extra of Meister, Lucius & Bruning.

*The Yellow Screen.*—Although treatment with dyes by the methods described makes the plates sensitive to yellow, etc., it does not to any great extent diminish the sensitiveness to blue, and it is, therefore, necessary to diminish the intensity of the blue and violet rays by interposing a screen between the object and the sensitive plate. Various substances have been used for this purpose. A cell containing a solution of one part of potassium bichromate in a thousand parts of water, answers very well, and an aqueous solution of picric acid can

also be employed; but the use of a liquid is inconvenient under all circumstances, and is practically impossible in the field. Glass plates coated with dyed collodion or gelatine are most frequently used, but thin plates of yellow or orange glass will answer equally well, provided that the glass is free from air-bubbles and other similar flaws.

The selection of the proper kind of screen is a matter of the utmost importance, and the power of selection enables the photographer to control his results to an almost unlimited extent. In copying a painting, for example, the screen may be changed several times during an exposure if the lens is capped whilst the change is being made, and thus a shorter or longer exposure may be given for different colors. By selecting his screens the photographer can, indeed, to a great extent, compensate for the fact that the sensitizing action of the dye is equal for the different colors. Exactly what kind of screen or screens to use in each case is a problem which can only be solved by the judgment and experience of the photographer, this judgment and experience being necessarily based on the scientific principles on which orthochromatic photography depends.

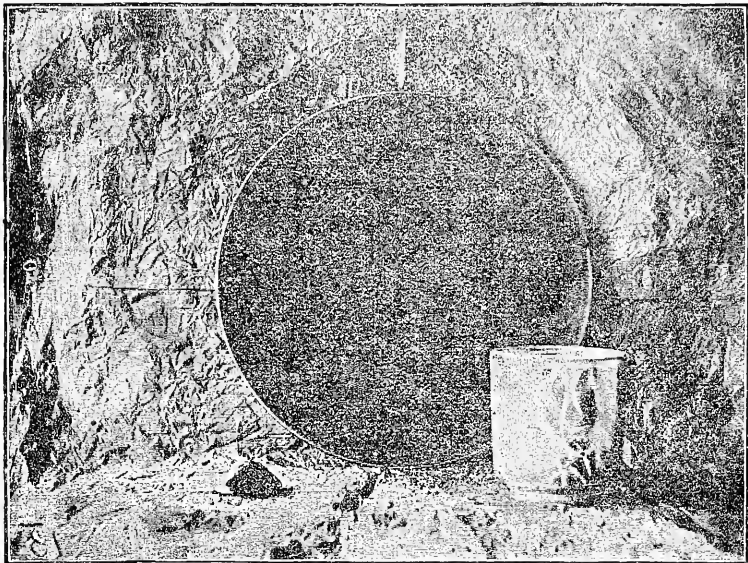
An examination, by means of a pocket spectroscope, of the light reflected from different parts of the object, will furnish valuable, and, in fact, almost indispensable, information, which cannot be obtained in any other way, and the same instrument should be used to ascertain the exact nature of any screen which it is proposed to use.

The paler the screen, and the greener its tint, the greater will be the proportion of blue and violet rays which will pass through it; and the deeper the screen, and the more orange its tint, the smaller the proportion of blue which it transmits. It is important to remember that a screen which will stop all the blue rays if the illumination of the object is comparatively weak, may allow a considerable quantity of blue to pass if the illumination is brilliant. It is obvious, too, that the greater the proportion of blue which is cut off, the greater will be the relative strengths of the yellows, greens, and oranges in the negative, and *vice versa*. Care must be taken, however, not to cut off too much

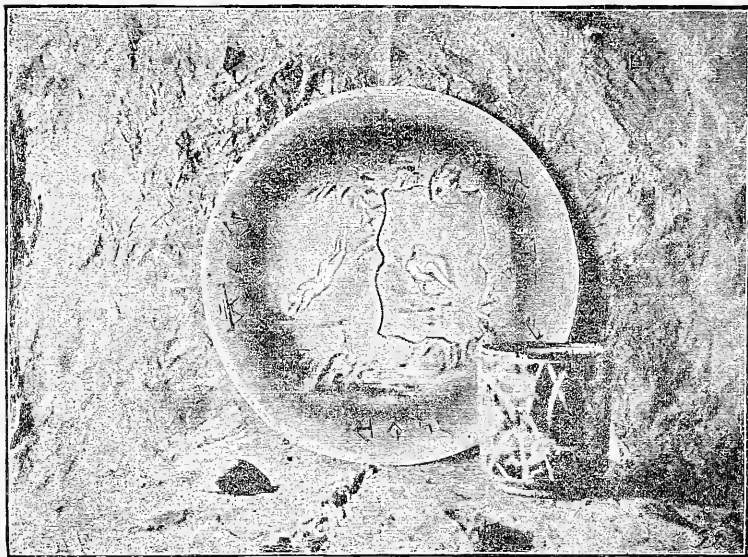
blue and violet, otherwise the blues and violets in the object will come out relatively darker than they ought to be. Moreover, many reds, especially red pigments, are not

pure, but reflect a certain quantity of blue or violet rays, and thus come out fairly bright on an ordinary plate. If, however, all the blue or violet rays are cut off by a

A



B



Photographs of a yellow and brown plate, and a dark blue and white Japanese vase; A on a Paget XXX plate, B on a Paget XXX plate stained with ammoniacal erythrosin (Mallman and Scolik's formula) with a yellow screen of aurantia collodion. Both plates had the same exposure.

screen, then the red will be relatively much darker, and may be rendered less satisfactorily by an orthochromatic plate with a screen, than by an ordinary plate without any screen. Vogel has recently pointed out that in certain paintings the shadows are more or less blue, whilst the lights of the darker objects, such as the clothing, may also be more or less blue; it is evident that in such a case, if the blue rays are cut off, the tones of the object will not be truthfully rendered. Further, it frequently happens that the shadows of a landscape toward evening are illuminated mainly by blue rays, and of course the same result would follow, as in the case of a painting. If a yellow screen is used, the shadows will come out much too dark.

Collodion dyed with aurantia, one of the coal-tar colors, cuts off most of the blue, the exact amount depending on the depth of tint; gelatine dyed with picric acid transmits a considerable proportion of blue; yellow or orange glass can be selected to cut off any required proportion of blue rays, if the selection is made with the aid of a pocket spectroscope.

The introduction of a glass plate between the object and the lens after focussing has been accomplished, is open to serious objections. If the glass is not very thin, and its faces are not perfectly parallel, the sharpness of the image is disturbed, and of course the introduction of two additional reflecting surfaces is always a disadvantage. Engler has suggested the use of stripped films of dyed collodion, which can be prepared in the following manner: A carefully cleaned glass plate is dusted with talc or French chalk, polished in the usual manner, and coated with plain collodion containing a sufficient quantity of aurantia, or whatever other dye may be selected. It is then allowed to set on a level surface, and when the film is perfectly dry it is stripped from the glass. The stripped film is cut up into pieces of suitable size, which are attached to the lens diaphragms by means of gum. The collodion is so thin that it causes practically no alteration in the sharpness of the image, but there is no difficulty in focussing with the diaphragm in position, unless a very small stop is being used. The films

are easily replaced when broken, but their fragile nature is a disadvantage, especially for outdoor work. It is obvious, too, that a duplicate set of diaphragms will be required if it is also wished to make exposures in the ordinary way. This is, however, the best method that has yet been proposed.

Glass screens answer very well, but it is essential that the faces be perfectly parallel. Either yellow glass, or plain glass coated with dyed collodion or dyed gelatine, may be used as may be most convenient. The glass, which must be free from air-bubbles and other flaws, transparent, and as thin as possible, is cut into the form of a circle just small enough to fit inside the hood of the lens, and is kept in position by means of a ring of brass wire with free ends, which acts as a weak spring. The screen is inserted before focussing, and does not in any way interfere with the use of the cap, shutter, or diaphragms. Moreover, if it is desired to change the screen, or to remove it altogether, in order to make an exposure in the ordinary way, the change is effected in a few seconds. When dyed collodion or gelatine is used, it is advisable to protect the surface from scratches by means of a coat of varnish, or a very thin cover glass may be used, similar to those employed in the preparation of microscopic slides, but, of course, much larger. Ordinary colored glass not only answers well, but is much less liable to damage than collodion or gelatine films, whether the latter are used on glass or as stripped films.

Such plans as painting the surfaces of the lens with dyed collodion, or inserting a sheet of glass in a hole cut in the cap of the lens, have no advantages over the methods described above, and they have the serious disadvantage that they interfere with the use of the lens cap, etc., for ordinary purposes.—*Photographic News*.

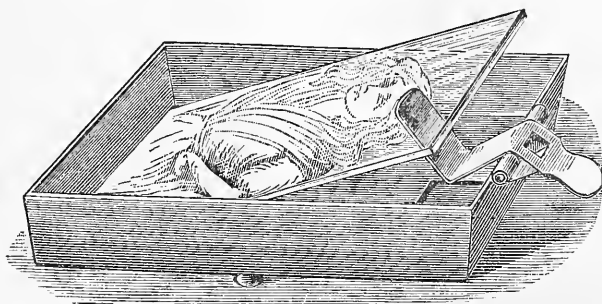
(To be Continued.)

### DEVELOPING DISH.

IN order to avoid dirtying the fingers with the developing solution, as far as possible, Anderson has constructed a developing vessel with a pulley-raising contrivance, seen in the wood-cut annexed.

If one wishes to take out the negative from the solution, simply press on the metal lever and the negative is raised up, and to do this, it is not necessary to touch the fluid with the fingers. This lever serves another purpose also, for by pressing up and down,

Distilled water is mentioned, as common waters vary so much that they sometimes upset all formulæ. In strengthening this toning bath, the gold may be simply neutralized with the tungstate; the excess not being required.



the fluid can be kept in constant motion during the development, and the trouble of inclining the whole dish back and forward dispensed with. To protect the affecting of the development solution by the metal lever, it should be galvanically silvered.—*Rundschau.*

### PRINTING PERPLEXITIES.

The supposed advantage of carbonate of soda is, that it can be used at once, but then the gold is precipitated on keeping the toning bath.

Acetate of soda or lime, or, better, chloride of lime, seem to prevent this precipitation; but they all, more or less, must be kept in conjunction with the gold some time before the bath is fit to use. If baths formed by these salts are not "ripe" enough, then comes that bugbear, mealiness.

A toning bath is wanted that may be thoroughly depended upon for working well at once, and that will also keep.

For uniting these advantages tungstate of soda seems decidedly preferable to any of the salts in general use. The bath can be used at once, will keep, and is the least liable to mealiness. To make the bath, take the chloride of gold, and just neutralize with tungstate of soda, and then to each grain of gold add twenty grains of the tungstate; dilute with boiling *distilled* water, and when cool, the bath is ready for use.

This bath can be kept and strengthened from day to day as required, ad infinitum.

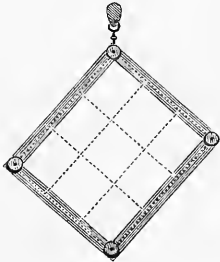
There have been complaints about acetates, phosphates, and other organic salts producing tones that will not stand hot-pressing without losing their richness. If the cause be, because the salts are *organic*, the tungstate of soda, being inorganic, removes the difficulty.

From a calculation of many months with this bath, it is found to tone to a rich purple, one and a quarter sheets of paper of thirty-two cards to a sheet, with one grain of chloride of gold.

Confidence is placed in this toning bath from its working so uniformly well for nearly twelve months, during which time the original bath has been in constant use.—*JABEZ HUGHES.*

**DRAWING** the paper off the solution across the smooth edge of the tray at an angle of forty-five degrees, or over a glass rod at the end of the dish, is a good plan, and not a drop will be left on the paper if done properly. No chance for "tear-drops" on such a surface. Let any photographer, in silvering, lift a piece of paper half off the solution in the usual way, and draw the last half slowly across the smooth edge of the silvering dish, and he will soon see how much silver goes to the waste that might be left in the tray. He does not want so much silver on his paper. It is not used in print-

ing and must be washed off before the print can be toned. Let him print from the piece thus unevenly silvered; that which was drawn across the tray will give the best results; or let him lay the piece away for a few days, and if he forgets which part was lifted from the solution, dripping, its yellowness will soon tell him, as the drawn paper will keep white much the longest, with the same time of floating.



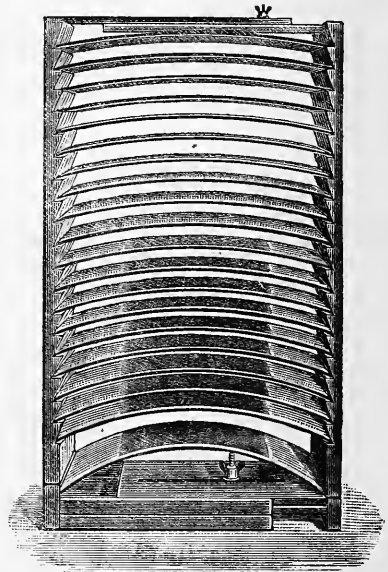
I lay my paper between blotters for a moment, as soon as I take it off the silver. I then pin it by *each* of the four corners to a frame of lath 10 x 12 inches outside, with cork glued on the corners, both sides, and strings running across it so the paper will not fall through, as I lay it down on my frame to pin it. A screw eye in one corner is necessary to hang it up by. My paper does not curl up as it dries, but is always flat, ready to use. Six of these frames will hold a dozen pieces.—F. M. Rood.

MEALINESS is one of those troubles which give great annoyance to the toner, and its cause cannot always be arrived at, though it is usually the result of imperfect toning. Different photographers use different salts for neutralizing their baths, but all seem to have trouble occasionally. Tungstate of soda will remove these troubles. As to the mealiness due to imperfect toning, there have been endless formulæ for baths, and a great variety of salts used to neutralize chloride of gold. Acetate of soda is decidedly the favorite salt used now, but even this has not been successful in the hands of some printers.

### PRACTICAL POINTS.

**DRYING LARGE PRINTS.**—When prints are hung up to dry on a cord by means of

clamps, they warp in the operation of drying. We strongly advise the use of an appliance made by Mr. Anfossi, of Mentone. This apparatus made known by Mr. Davanne, in his book *La Photographie*, consists of two uprights joined at top and bottom by movable crosspieces to which, by means of a screw, may be given the desired space. The distance between the two uprights is so fixed that the cardboard can only rest upon the grooves in a curved form, the print being on the outside of the curve. The appliance is filled from top to bottom



with the stuck prints; the distance between them is sufficiently great to allow the free circulation of the air. The curvature given to the cardboard prevents warping, and the whole forms an arrangement taking up but little room and furnishing regular and rapid drying. The dry prints are laid flat, one over the other, covered with a weighted board, or placed under a press; they thus gradually straighten out which facilitates the enamelling.—*Journal de L'Industrie Photographique*.

**DIRECT PRINTING OF PHOTOGRAPHS WITH FATTY INKS.**—To use directly the gelatine sheet as a printing plate, take gelatinized parchment paper similar to that used

for autoscapy in black. This paper is plunged into a sensitizing bath of bichromate of potash, or perchloride of iron, or of nitrate of uranium, then it is left to dry in obscurity after having been placed on a talced plate with the gelatine resting on it. Then in a pressure-frame this sensitized sheet is placed on the negative to be reproduced and exposed to diffused light. The light having impressed the bichromatized gelatine of the paper, the paper as removed in water and we have on the sheet the image in hollow lines and in relief. To use this plate for printing a variable degree of humidity should be given to it according to the reliefs to be obtained, and it is stretched on a special frame upon which it serves directly as a printing plate.—*Journal de L'Industrie Photographique.*

**RUSSIAN PROCESS OF PHOTOGRAVURE WITH NITRIC ACID ON WOOD.**—A process, which is said to be of Russian origin, for the production of boxwood printing-blocks, is given in our journals of this month. The first operation is to fill the pores of the wood with carbonate of copper, by first boiling in a solution of sulphate of copper, then in one of carbonate of soda. The block is allowed to soak in pure water long enough to dissolve the sulphate of soda produced in this operation; it is then slowly dried and the surface polished, an asphaltum varnish is applied to the back and the sides of the block, and, finally, a coating of gelatine sensitized with bichromate of ammonia is poured over the polished surface. To thirty-one grains of gelatine, dissolved with the aid of gentle heat, in four fluid-drachms of water, are added eight grains of bichromate of ammonia. The block is now placed on a negative, after which it is washed in warm water to remove the soluble portions. On the raised portions which remain, an asphaltum varnish is applied to protect them, and the block is then plunged into strong nitric acid. The unprotected portions are thus converted, more or less, into nitrated cellulose, which may easily be removed (with the aid of a brush) in the form of a greenish powder. To complete the process, the asphaltum is removed by means of benzine, and the block is then ready for

use. Here we have the nitric acid biting into the boxwood as it is made to bite into the copper in ordinary copper plate engraving. It seems to me that this process, which is said to be of Russian origin, is really Polish, and is not quite as new as is supposed.—*Dr. Phipson.*

**STELLAR PHOTOGRAPHY.**—In his lecture on astronomical photography at the *Royal London Institute*, Professor David Gill spoke with enthusiasm of his visit to the Photo-astronomical Laboratory of Messrs. Henry Bros., at Paris, and of the splendid results obtained by these gentlemen. The photographic charts obtained by Professor Gill at the Cape of Good Hope, of which our readers have seen an example, are in the hands of Professor Kapteyn, of Groningen, who, with three aids, will give them his attention during five years. This work ended we shall have a photographic abstr act of the entire heavens, a sort of preliminary plan forming the basis for future work.

**NEW MAGNESIUM LIGHT FOR INSTANTANEOUS PHOTOGRAPHY.**—In the list of new patents obtained in England, we see one of Messrs. Gædicke & Miethe, having for its object a magnesium light suitable for making instantaneous photographs. The inventors use one or the other of the two mixtures. The first contains:

Chlorate of Potash . . .	12 parts.
Magnesium in Powder . . .	6 “
Ferrocyanide of Potassium . . .	1 “

Or may be used:

Chlorate of Potash . . .	24 parts.
Magnesium in Powder . . .	12 “
Amorphous Phosphorus . . .	1 “

Here, however, is the most ingenious part of the patent. In order that the combustible powders, destined for instantaneous photography, should be rendered better adapted to the reproduction of objects colored in red, in yellow, or in green, the inventors introduce into the powder, of which we have given the composition, certain salts which, placed in a flame, give in the spectrum of this flame certain brilliant lines corresponding to these colors. Thus, as much as ten per cent. of *soda, strontium,*

*lime, barytes, lithium, or copper*, according to the colors of the objects to be reproduced.

SALE OF THE HELIOTYPE OF WEDGWOOD MADE IN 1791.—On the 25th of July last, the auctioneers, Messrs. Sotherby & Co., sold in London, the heliotype made by Wedgwood in 1791, and also twenty-six reproductions of the same. These objects had belonged to Mr. Joseph Meyer, of Liverpool, member of the Antiquarian Society. It is asserted that this print is the first photograph ever made.

### THE WORLD'S PHOTOGRAPHY FOCUSSED.

MR. F. STOLZE'S METHOD FOR DETERMINING IF AN EMULSION IS ACID OR ALKALINE.—The acid or alkaline reaction has but little influence on its keeping qualities, the alkaline reaction may fog the plates on the edges. On the other hand the acidity should not be too great, because the film loses some of its sensitiveness and of its strength of structure. When the acid or the alkali is present in small quantities, it will be found difficult, if not impossible, to determine the reaction by means of litmus paper, but the following method may be employed: a glass plate is coated with collodion containing some aurine, then allowed to dry. Aurine is entirely insoluble in water if acid be present, and if there be an alkaline reaction, the aurine will be dissolved and give a beautiful carmine tint. When a few drops of the emulsion to be essayed are poured on the film of collodion and aurine, it will remain colorless; but if there be any alkali it will immediately show a pinkish tint. This proof is certain and very delicate. Several experiments may be made on the same plate. To those who make their own emulsions this regular process is recommended, and if the pinkish tint appear, acetic acid is to be added, drop by drop, until the film is no longer colored.—*Wochenblatt*.

TO PREVENT PRINTS FROM COCKLING.—In order to prevent unmounted photographic prints from cockling, a Belgian

photographer advises immersing the prints, after the last washing, in:

Water . . . . .	1 part.
Alcohol . . . . .	4 parts.
Glycerine . . . . .	3 "

This method has also been adopted by M. Balagny to give more flexibility to his pellicles.

RED PIGMENT IN ALBUMENIZED PAPER.—Mr. Fiedler says, in the *Deutsche Photographische Zeitung*, that the pink coloring matter used for tinting albumenized papers is the cause of the fading of many prints. It is easy to convince one's self of the injurious effect of the pinkish substance. If a photograph on pink paper is exposed to the light for a longer or shorter time, the hidden parts will have undergone no change, whilst in the other parts which have been exposed to the light, the yellow tint exists, a decomposition of the pink color takes place and attacks the whole of the image. Happily this evil is not universal, and all kinds of paper are not subject to it. The papers of some manufacturerers have given good results without showing any tendency to become yellow, but many papers which appear very good rapidly deteriorate. All aniline color should be rejected for albumenized paper. Collodion paper has the advantage in regard to permanence. About three years ago Mr. Fiedler had hung in his studio some prints on albumenized paper and on collodionized paper; the last remained as brilliant and as clear as if they had been made yesterday, whilst the albumen prints were pale and faded notwithstanding the thorough washings they received, washings much more thorough than those given to the collodion prints.—*Revue Photographique*.

AZALINE.—We find in the trade azaline or azaleine, which is an aniline color. It is a nitrate of rosaniline and sold under other names such as rubine, new red, fuchsine, etc. It is not the same substance that Dr. Vogel calls *azaline* and which is, we believe, a mixture of cyanine—the coloring principle of some flowers such as the violet—and chinoline blue, this last being iodide of cyanine.



## PHOTOGRAPHING A CARRIAGE WHEEL.

—Since some time endeavors have been made to demonstrate, by means of photography, a rather curious paradox, namely, *that the upper portion of a carriage wheel moves faster than the lower portion.* To-day the question again comes up on account of a photograph that Mr. S. W. Gardner has just sent to the Editor of the *Photographic News.* Let us examine this statement. The exposure, in this case, lasted about a half second. It may be remarked on the print that the lower portions of the spokes, those nearest the ground, are reproduced rather sharply, whilst in the upper portion exactly opposite, the reproduction of the spokes shows that they have moved, and that the displacement in this interval was about ten degrees. It has been inferred from this that *the upper part of a carriage wheel travels faster than the lower part,* and this phenomenon is explained by stating that it is due to the friction caused on the circumference of the wheel by its contact with the ground. It cannot be said that any part of a carriage wheel travels faster than another part; but what photography has demonstrated is that owing to the resistance or friction of the earth, a carriage wheel travels by a series of jumps and that at a given moment the photographic plate is capable of reproducing one of these jumps.

MANUFACTURE OF EOSINE.—To-day that eosine (that is to say, the *fluorescine* of which four atoms of hydrogen are replaced by four atoms of bromide) has become a product daily used in photography, I think it well to call attention to the fact that the *Journal of the Society of Chemical Industry*, of April 29th last, gives a rather complete résumé of the article published by Dr. Otto Mulhäuser, on the manufacture of fluorescine and its compounds with bromine, iodine, and ether (see for the original article *Dingler's Polytech-Journal*, No. 263). In the same number Dr. Mulhäuser has an interesting article on the industrial productions of *resorcinal.*

NUMBERING PACKAGES OF BROMIZED PAPER.—A complaint appears in our journals that some manufacturers of gela-

tino-bromide paper have adapted a new system. Instead of printing on the packages the date of the manufacture of the paper, as has hitherto been done, they simply, it is said, number the packages. On the other hand, some manufacturers, we are told, will not be responsible for the defects that might exist in such papers used *six months* after their manufacture.

DISTILLING APPARATUS.—At the London Photographic Association, Mr. Henderson placed before the members a distilling apparatus of Mr. Brachner, of which the lower part resembles a reversed funnel, and of which the steam tube has not the form of a halix but is disposed in such a manner as to so rapidly condense the water that when the apparatus is charged with two quarts it condenses about one quart of distilled water hourly, so it is asserted.

SLOW DEVELOPMENT.—At the Liverpool Amateur Society, Mr. Sayce, speaking of the development of bromized gelatine plates, said that it presents no difficulty except in the case where the plate had received a too short exposure. In this case he advises about a half-hour, and for interiors one hour, at least. He remembers having made the development with a collodio-albumen plate, during one week. In such cases to be successful it is necessary to 'go slowly.—DR. Phipson in *Paris Moniteur.*

THE CHICAGO PHOTOGRAPHIC EXHIBITION.—“A Constant Reader,” asks us if he would do well to send some pictures to the Photographic Exhibition of Chicago at which the Congress of American Photographers invite him to compete. We simply answer that foreign exhibitors will only have two medals to divide among them; a gold medal for the best portrait, and a silver medal for the best land- or seascape. What do the American photo. journals think of this parsimony?—So writes the *Journal de l'Industrie Photographique.*

PHOTOGRAPHIC POETRY.—A certain M. Tonger, of Cologne, having prepared a toast of considerable length (one hundred and seventy-two lines), in honor of a meet-

ing of photographers held at Brunswick, the local photographic organ felt called upon to publish in its entirety this formidable effusion. We send to our colleague our most sincere compliments of condolence.—*Journal de l'Industrie Photographique.*

COL. GILDER, the Arctic explorer, tells some strange stories about the unreliability of photography. He attempted to photograph a dog on a garden seat and a child on a chair with a cushioned back—but when he developed the plates there was the rustic seat, and there again the chair—but no dog nor child. He used a Wales lens and a Scovill camera.

THE English Courts have more confidence. They are employing photographic testimony more than ever before.

"I UNDERSTAND you brought your *cameo* with you," said our rural friend to a city amateur recently.

"MA, I smell a photographer coming," said a little boy when he saw some tripod legs at a railway station.

WITHOUT EXTRA CHARGE.—The Sarnia (Cal.) *Observer* relates this: "A young man named Harrison, from the vicinity of Wakeport, went to St. Clair to have his portrait taken. He sat for two tintypes, which he took home. His sister, on being

shown the portraits, became greatly excited, and almost fainted away. At the foot of each picture, in a reclining posture, her head resting on her hand, was a picture of the young man's mother, who had been dead for some time. The tintypes have been seen by a number of persons, who corroborate the above story. So-called spirit pictures are frequently taken by photograph artists on the old-style glass plates, but it is said that the trick cannot be done on tintypes. However, it was accomplished, the pictures are there, and every one who sees them may have his own theory of how they were produced. Guess he had better not, 'stuff and nonsense,' can explain."

By means of a mixture of pulverized magnesium, chloride of potash, and sulphide of antimony Messrs. Gædicke and Miethe produce an explosive, lightning-like illumination, which is likely to be of much value in photographs. The flash lasts one-fortieth of a second, and provides a cheap and practical method of securing instantaneous pictures at night or in dark places.

SPURIOUS mounting boards are causing a great deal of trouble in England. The journals are aroused against them. Look out for imported stock.

SOME amateurs at a French watering place were arrested for "grabbing" photographs of unwilling "subjects."

## Editor's Table.

MR. W. V. LANE, Camden, Me., has favored us with several cabinet size examples of his nice clean work. Careful posing, cleanly manipulation, and tasteful lighting are all evidenced by Mr. Lane's pictures.

"As to *Quarter Century*—it has enough contrivances and hints to be worth the money, I guess. Had expected it to take the place of *Photographics*—but I can't spare that yet. One needs the *pair*. To be sure, many of the points in *Quarter Century* can be found in the journals,

annuals, etc., but if *all* could, it is worth something to have them selected, indexed, and compacted into one volume."—F. S. SMEDLEY Berea, Ohio.

A SERIES of prints which took the prize at Buffalo was inspected by us lately from Mr. H. McMICHAEL, Buffalo, sent to Messrs. E. & H. T. ANTHONY & Co. for exhibition. They are fine. Mr. McMichael, however, has already excelled the splendid work exhibited by him at Chicago. The proof is before us now—a fine

17 x 21 print, the subject, a lady standing, three-quarter figure, her side to the camera, the face a little turned toward the artist. We can only imagine what it was intended to represent, mayhap Helen of Troy, with bared arm and neck; a lovely mass of hair, banded in loose Grecian style; a face with superb lines even sculptur-esque in their precision—a womanly attitude, with no distracting drapery—all these in harmonious simplicity and not a single element in the whole picture with which fault could be found. It is a grand study.

*Mosaics* for 1888 will fairly overrun with splendid papers, many of them by old contributors, who for years have helped make our humble little annual the great favorite it is. Not only this, several new features are introduced. More attractive still will be the special contributions of some of our *veteran* workers, who have not been heard from very much of late years. Among these will be some of our most popular American artists. See full announcements in our next number, and meanwhile prepare for a rare treat in *Mosaics* 1888.

MONS. LOUIS FABRE, 236 W. 44th St., N. Y., should be known to more of our first-class photographers. He has recently shown us some of his petite miniatures, colored and burned in, which are the most exquisite we have yet seen. His carbon transfers on gold watch-cases, chatelaines, etc., are also lovely. He does them for the trade only and should be largely patronized.

THE Talcott Glass-Mounting surely adds to the beauty and permanence of the picture and should also be inquired into, for it will make a fine Christmas novelty. Try it.

"*Bitte das Heft nicht zu falten,*" and "*Ne pliez pas cette li vraison, S. V. P.*" are allowed upon the wrappers of our foreign exchanges, but our enterprising Republic says it is "against the law" to print "Please do not fold this package" upon our wrappers.

MR. GEO. F. PARKER, of Yarmouth, N. S., called upon us recently and gave us a fair report of business prospects in his cooler country.

A "combination drinking cup and focussing glass" seems a strange thing to provide, and

yet it is done by Messrs. E. & H. T. ANTHONY & Co., N. Y. It consists of a "collapsion" metal cup with a lens in the bottom. A cute, useful article. Sold at 75 cents.

AN envelope "packed tight" comes from Messrs. BUCHANAN, BROMLEY & Co., Philada., with circulars pertaining to their novelties, prominent among which we notice the "Fawn printing pad;" the "Pearl lead" for negative retouching, and a "Batch of Bargains" in goods consigned by the executors of two estates.

MESSRS. ROBERTS & FELLOWS, 1125 Chestnut St., Philada., are the most extensive manufacturers of lantern slides in America, and we have not seen any in quality to equal theirs. They have just published a series from their splendid negatives of the late processions in Philadelphia in honor of the Centennial of the U. S. Constitution. Also new lectures on "Old St. Augustine" and "New Orleans"—twelve slides in each, of fine interest. Their new catalogue is ready.

THE Blair Camera Co., Boston, recently gave "a day off" to all their factory employees, and a picnic headed by Mr. T. H. BLAIR in person was had at Riverside. It was an enjoyable occasion, and, of course, groups of the happy, appreciated and appreciative picnickers were taken. We recognize the faces of Mr. Blair, of "Sarah" the forelady of the "bellows builders," and of Mr. Hunnewell "the heaviest man of all" and yet the prince of "Feather Weight Holder" makers. Also the winner of the prize for the "100 yard dash."

PICTURES of the prize takers' and medal winners' exhibits. If our request is as generously responded to as we expect, we have some rare treats in store for our subscribers soon, in the line of presentation of reductions of some of the great pictures shown at Chicago. More anon.

CARRYING COALS TO NEWCASTLE.—On the last voyage of the steamer "Indiana" to this port (Philadelphia), part of her cargo was several hundred boxes of Pilkington's Photo-glass for Carbutt's Dry Plate Works, Wayne Junction, and on her return took back eight orders of the celebrated Keystone Dry Plates for as many leading English amateur photographers.

England being the birthplace of the new popular Gelatine Dry Plate, this is verily "Carry-

ing Coals to Newcastle."—*Philadelphia Daily Times*.

"As to *Quarter Century*—send it at once. I always find many articles in each one of your books, one of which is always worth more to me than the cost of the book." D. P. BARR, San Antonio, Texas.

MESSRS. A. B. PAINE & Co., Fort Scott, Kas., give a good report of business prospects in the Northwest and Southwest. They say: "We have had a very successful business the past year, being more than three times the amount we did the year before. We are carrying a stock proportionately larger to meet the increased demand, having extended our trade throughout Texas, New Mexico and even Utah, with prospects of a good fall and winter trade."

RETROSPECTIVE.—It is not often that any one who receives editorial mention and commendation, thinks to turn back and mention it to the earnest editor who seeks the good of all, and yet here is an exception—and a good one:

"DEAR SIR: It has given us great pleasure to read the report that you gave us of our exhibit at the late P. A. of A. Convention. We do not know exactly what to say. It is so generous of you to give us such a kind notice, and one which we shall feel indebted to you for, and hope in some way to remunerate you for the consideration which you have shown us on this occasion. Allow us to thank you for this for the present and hope in the near future we will be able to render some service to you which shall be to your advantage. We must beg pardon for this delay in acknowledging the service which you have rendered, but the best excuse we can make is that the writer has been so very busy that it seemed almost impossible to keep up with the demands of heart and brain."

It comes from a party whose standing in the trade is unrivalled, and is all the more gratifying to us as well as creditable to the writer. We withhold his name for his own sake, but would be proud if we could add it.

"Do I LIKE IT?"—When Mr. W. B. GLINES, Hutchinson, Kansas, bought a copy of *Quarter Century* at the Chicago Exposition he was requested to send word if he liked it. He writes under date of August 29th as follows: "Do I like it? Well "like" is scarcely the word. It is fine, and every "wide-awake" "progressive" photographer should have a copy. I would think my photographic library incomplete

without it." *Quarter Century* seems to meet with acceptance wherever it goes.

Mr. A. K. P. Trask, 1210 Chestnut Street, Philadelphia, has sent us an interesting composite picture made from the portraits of twenty Philadelphia clergymen. The long beard of Dr. Trumbull and the side whiskers of Dr. McCook are gone, and the wavy hair of Rev. Mr. Dripps is out of sight. Strange products are these composites, any way.

THE *Philadelphia Photographer* for September 17th contains a clever character study entitled the New South, representing a young and ragged negro lad mounted on a bicycle, and evidently enjoying himself as much as those who see the clever picture, which has been beautifully reproduced by the Ives process. The picture is by Mr. E. E. Brown, of Asheville, N. C. The report of the Chicago Convention of Photographers is continued, and contains much matter of interest. The list of prize winners is also given, besides the usual correspondence and special articles. There is no better trade paper than the *Philadelphia Photographer*, which sticks closely to its specialty, and is so intelligently edited by Mr. Edward L. Wilson, the publisher, that every line is made to tell. The *Photographer* is now published at 853 Broadway, New York.—Mr. G. W. CHILD'S *Philadelphia Daily Ledger*.

Mr. T. H. McALLISTER, 49 Nassau St., N. Y., has sent us his October *Bulletin of Novelties* in magic lantern apparatus and views. Its catalogues some rare and new and beautiful things for the coming exhibition season and should be consulted.

Mr. HENRY TALBOTT, Waterloo, Ill., sent us two excellent cabinets of a young lad who in one is roguishly posed eating fruit, and in the other climbing a great tree trunk, with the dedication thus: "An amateur sends to the author these humble efforts as a slight acknowledgement of the pleasure and profit that came of the study of *Quarter Century*."

ADVERTISEMENTS for *Mosaics* 1888 are \$10.00 per page only and should be received at once.

MESSRS. ROBERTS & FELLOWS, 1125 Chestnut St., Philadelphia, have issued a new and enlarged edition of their lantern and slide catalogue which is very handsome and complete. The lists contain some new and attractive goods.





'Eucalyptus' - A large tree in the forest, California

THE  
**Philadelphia Photographer.**

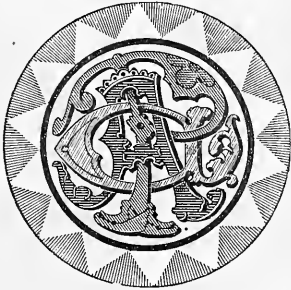
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**PERTAINING TO THE**



**A CALL TO THE CRAFT IN BEHALF OF  
JEX BARDWELL.**

St. Louis, Mo., October 7, 1887.

*To the Fraternity:*

The P. A. of A. has voted to Jex Bardwell, of Detroit, the sum of one hundred dollars, in consideration of his services to us all in connection with the defeat of the bromide patent and the Shaw silver-saving patent. All the older members of our profession will recollect the efforts of the holders of these patents to tax the fraternity many thousands of dollars, and the great annoyance caused thereby, and as Mr. Bardwell is now in old age, and in need of assistance, it is but just and proper that something should be done to appreciate his services to our craft.

Our Association has started the matter, and all photographers, members or non-members, should contribute something, and make up a sum sufficiently large to place him above want in his old age.

I am ready to do my share, and suggest

that all editors of photographic journals will assist to carry out this purpose by receiving contributions and receipt for them through their journals. The cause is worthy; let us all lend a helping hand, and by speedy and united effort give that assistance, which, coming promptly, is doubly effective.

Fraternally yours,

G. CRAMER,  
President P. A. of A.

**THE NEXT CONVENTION.**

EDITOR PHILA. PHOTO.

As editors are presumed to know everything, and as you are the oldest (in length of service) photographic editor in the country, perhaps you can decide if the Executive Committee of the P. A. of A. have the authority to change the place of meeting of the next Convention, if they consider it for the best interests of the Association.

This inquiry is prompted by so many thinking that Minneapolis is not enough central for the convenience of a greater number of the members. If you do not feel disposed to answer the question, perhaps you will submit it to the readers of THE PHILADELPHIA PHOTOGRAPHER, so that the committee may hear from the members of the P. A. of A. through the photographic press or otherwise.

D.

**HYDROCHINON.**

BY JEX BARDWELL.

HAVING used hydrochinon as a developer, more or less, for over three years past, I feel as if I am entitled to express an opinion

as to its merits. But before doing so I will partially trace its history.

Perhaps some may be able to see a cause why it has not come into more general use. When Capt. Abney, in 1880, suggested its use in place of pyrogallic acid, or that it might be used in its place, it was supposed it could be used as pyro, and thus it was that those who used bromide of ammonia did not succeed in finding its good qualities. And again, 10 to 12 grains are as much as will fairly dissolve in an ounce of water, and I have found some samples that would not do that; and where there are undissolved crystals of hydrochinon in the developer they will produce any quantity of black, intense specks and streaks on the plate; and again, if an undue quantity is used, by being dissolved by other means, it will cause an undue development, exceedingly intense over a part of the plate before some other part has had a chance to follow. Its high price per ounce may also have deterred some from trying it; but when you find the small quantity needed to do most excellent work, and that the same portion of developer can be used for plate after plate, say at least six to eight, it really becomes as cheap as pyro even at its present price. As a matter of interest, I will give a few of the formulæ for its use that have, from time to time, been published, together with some opinions as to its qualifications, reserving a few remarks of my own to finish with, hoping at the same time that I may not be taking up too much of the valuable space of this journal.

The first formula in my note-book was taken from Anthony's *Bulletin*, which reads as follows:

	No. 1.	
Hydrochinon . . . .		1 ounce.
Water . . . . .		4 ounces.
	No. 2.	
Ammonia . . . . .		1 part.
Water . . . . .		2 parts.

To each quantity of No. 1, as above, add three drops of No. 2.

Soon after appeared:

	No. 1.	
Hydrochinon . . . .		5 grains.
Water . . . . .		4 ounces.

No. 2.

Ammonia . . . . .	1 drachm.
Water . . . . .	9 drachms.

For use, 4 ounces of No. 1, and 30 drops of No. 2.

In 1883, Mr. Rockington gave the following:

A.

Hydrochinon . . . .	12 grains.
Alcohol . . . . .	12 drachms.

This keeps tolerably well.

B.

Carbonate of Soda (washing soda) . . . . .	10 p. ct. sol.
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For use

Take of A . . . . .	1 drachm.
Add water . . . . .	1 ounce.
Add of B . . . . .	1 ounce.

He remarks, "the plates are free from fog, and fine detail—better than any developer I have used."

"G. St. I. B. uses Rockington's formula; finds its loses a good deal in the hypo; gives a brown tint in the transparent parts of the negative, which cannot be wholly removed by clearing solution; believes it to admit of shorter exposure than any other developer he has used."

1883. Edwin Banks gives a full history of hydroquinone, or hydrokinone, or quinol, or hydrochinon, for it is known by each of these names. He says no restrainer is necessary unless a great error in exposure has been made. It does its work rapidly and clean; it does not discolor during development so much as pyro; full printing vigor is very easily obtained without having to resort to intensification. The color and appearance of the negative are more like the wet plate, since the shadows remain so clear and free from fog. It seems almost impossible to fog a plate with it. He finds one grain to the ounce of developer is sufficient with some samples. If hard gelatine, he has used two grains. He preferred to use it with a saturated solution of sal soda, two or three drops to the ounce of developer. He also speaks of its useful quality for developing on paper, either bromide or chloride film.

1883. A. A. Campbell Swinton remarks that plates developed with hydrochinon and



carbonate of soda require only two-thirds of the exposure necessary with pyro development. If ammonia is used, it is less effective than pyro, and necessitates a longer exposure. It seems almost impossible to fog a plate however much carbonate of soda be added. His formula is:

Hydrochinon . . . . .	2 grains.
Saturated Solution of Carbonate of Soda . . . . .	5 minims.
Water . . . . .	1 ounce.

1883. Howard Farmer gives:

No. 1.	
Hydrochinon . . . . .	5 grains.
Water . . . . .	4 ounces.
No. 2.	
Ammonia . . . . .	1 drachm.
Water . . . . .	9 drachms.

For use:

No. 1 . . . . .	4 ounces.
No. 2 . . . . .	30 mm.

1885. Henry Bolden can get only 8 to 10 grains to dissolve in 1 ounce of water; finds that a solution containing  $\frac{1}{4}$  to  $\frac{1}{2}$  grain of hydrochinon gives the same amount of density as  $1\frac{1}{2}$  to 2 grains of pyro, but was unable to obtain a negative when using the standard bromide and ammonia solution; by using a solution of carbonate of potash the results was a negative full of detail and nice printing density, with only half the exposure required for an oxalate developer. But he obtained yellow negatives. He stated that a Mr. Glen got rid of the yellow color by using alum and citric acid bath.

1885. Mr. W. T. F. M. Ingall's formula:

A.	
Hydrochinon . . . . .	80
Tartaric Acid . . . . .	80 grains.
Alcohol . . . . .	7 ounces.
Glycerine . . . . .	1 ounce.

B.	
Carbonate of potash . . . . .	8 ounces.
Water . . . . .	32 ounces.

Filter twice. Take of

A . . . . .	1 drachm.
B . . . . .	4 drachms.
Water . . . . .	4 to 5 ounces.

885. W. B. Allison says: I show two plates developed with hydrochinon, one by two grains of hydrochinon and two minims of ammonia, the other by two grains of hydrochinon and one minim of ammonia, and no restrainer at all. This is an excellent developer, the plate requiring a very short exposure. The image comes up well, and, as you see, quite free from stain or fog of any kind.

1887. C. E. Von Sothern, at the Chicago Convention, gave a formula, viz.:

No. 1.	
Soda Carbonate . . . . .	60 grains.
Water . . . . .	1 ounce.

No. 2.	
Hydrochinon . . . . .	12 grains.
Soda Sulphate . . . . .	60 grains.
Water . . . . .	1 ounce.

For use mix:

No. 1 . . . . .	1 ounce.
No. 2 . . . . .	2 ounces.
Water . . . . .	1 ounce.

He says he has a case on record where, with 6 ounces of developer containing 36 grains of hydrochinon, he developed 16.8 plates, transparencies, line work, negatives, without any addition whatever, by slightly increasing the time in the camera, after which the mixture was bottled, and served as an excellent starter for several subsequent exposures. Another excellent quality of hydrochinon is the beautiful tone of its deposit, a fine velvety engraving black, and a magnificent clearness in the shadows.

I find the formula of Van Sothern the best that I have found published, and for a gelatine plate that gives a very thin image perhaps it may do, but in my practice six grains of hydrochinon would give altogether too intense an image, and on the trial of the above formula I found it to be so. Allowing the formula to stand as above, with the exception of reducing the quantity of hydrochinon to one grain per ounce of developer, I have never used a developer that pleased me better. It has also given me better tones and as pure whites on bromide paper as the regular oxalate developer. I have not tried it on negative paper or films, but I venture to say it will prove just as valuable. The price of hydrochinon is

quoted at one dollar and twenty-five cents per ounce, and for the work it will do I consider it quite as cheap as pyro. The developer keeps well; the negatives are pure in color, and of any strength that you desire to make them, and I do not think any one will regret using it if they give it a fair trial.

### HYDROKINONE—OR KINONINE.

BY THOMAS PRAY, JR.

MR. VAN SOTHERN'S article in the PHILADELPHIA PHOTOGRAPHER of October 1st has attracted my attention from two quite different points. One is, I have spent quite an amount of time with the new developer—and the other that my experience is very different from his. Now, possibly by exchanging ideas or results, if "ye editor" approves, we may bring to light some good to those most interested.

Four years ago, in the summer of 1883, my first experience was had with hydrokinone. All the dry plates then on the market were not only different from but vastly better than the major part of "dry plates" of '87, from the fact that the "snap-shutter cranks" had not then imbued the dry plate grist mills with the idea of quicker 'n lightning, and a dry plate then could be developed so that it had some body in the proper places and pretty rarely bare glass in the right spot. To-day, speed seems the desired end and aim (I am not now talking of portrait work) and the film when all done is as thin as church-fair soup—or charity, and with that allowance the results of to-day may be slightly at disadvantage of the hydrokinonine as against results of '83, '84, '85.

My own experience leads to the conclusion that the hydrokinone solution is practically inert unless it has fully twenty-four hours in which to ripen; then again, about one drop of sulphuric acid to the ounce of solution puts more snap into it, and about one-third as much soda as Mr. S. uses, and negatives (with somewhere near proper exposure of plate) can be had that will discount any pyro negative. I have ever said for snap-shutter cranks it is just the thing. It comes slow and does not need any double

solutions or other nonsense, and it can be used with a restrainer. Take a fifteen grain solution of bromide of soda, and if when detail is out density is lacking, use one or two drops of bromide solution per ounce of developer, not more, and any amount of density can be had if the plate has been pretty nearly correctly exposed. But with the  $\frac{1}{1000}$  second exposure nonsense, don't use the hydrokinone. It positively won't develop hair on a bald head, nor on dude exposures, but if good sense is used in exposure there is no doubt of its being far ahead of pyrogallic acid, and with experience it can be handled quite as successfully. But, snap-shutter cranks, please notice, it takes six to ten times as long to develop a plate as by the rusty method of a strong developer and hurrying it through, and the plates have a finer modulation than either pyro or oxalate where high lights and deep shadows are in the same picture. The negatives have a thin, slightly yellow look, and at first you may think they are "slim," but when you get prints from them you will be most pleasantly disappointed—at least, that was my early experience.

The hydrokinonine developer is clean, and preëminently desirable on that account, and if your plates are correctly exposed the developer can be used over and over again, unlike pyro, and still remain clear and clean; by adding a small percentage of fresh developer to each trayfull of plates it will not cost as much to develop the same number of 5 x 8 or 8 x 10 as with pyro, bearing in mind that my own plates can be put six at once into the same strength of developer and come out pretty near the same time. But no fish stories as to one hundred times or one-hundredth of a proper exposure for me, my developers won't accomplish any such "racket."

Again, the proportions must be made for the plate, some require double the pyro and one-sixth the soda to get a good negative; Mr. S. does not say what plate he uses with his formula.

Are there not two misprints in the article referred to, see p. 579, "as one developer 1 ounce of developer of a 10 per cent. solution of potassic bromide, etc." What does that mean? And on p. 580 read, "owing

to the strong *toning* action of the hydrochinone frilling even in warm solution," etc, it seems to me *tanning* is meant.

By the use of two strengths of developer, one to start and another with more of the hydrokinone and less soda, a negative can be made black and white; but the old idea that a plate that don't come up pretty fast is not good don't work at all in the hydrokinone development. Full exposure and lots of patience have given me some of my most beautiful negatives.

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### PHOTOGRAPHY IN NATURAL COLORS. THE PROBLEM NOT YET SOLVED.

BY GEORGE G. ROCKWOOD.

It has been announced of late that parties in London had discovered the art of reproducing and retaining by photography the colors of nature. Surely nothing in an artistic way could have been more interesting or valuable.

Important as was the invention of the daguerrotype, and the subsequent development of the Art-science Photography, there has always been a desire to see the exquisite tints which we see in nature, and have in miniature upon the ground glass of the camera, reproduced in some tangible and permanent form. Neipsc de St. Victor and other French scientists have obtained upon the daguerrotype plate some of the colors of foliage, a red brick house, etc., but the range of color was limited, and the pictures could only be seen in a feeble, non-actinic light—soon fading from view. This was accomplished some twenty years ago, since which time no material advance has been made in this direction. So far as the art of photography, as now practised, is concerned, I have no expectation that the development of color will be attained *direct from nature*.

Light, as is well known, has three distinct qualities: illumination, heat, and actinism. The latter is the chemical ray, and is that which affects the sensitive plate. A beautiful, though somewhat intangible theory obtains, that inasmuch as it is this actinic or chemical quality in light which imparts all color to nature, and without which all vegetation bleaches and becomes white, and

dies; so we have a right to hope that it will also so affect the photographic plate as to give us the beautiful tints of the rainbow!

But, unfortunately, color has value to the photographic plate only as it *reflects* the rays of light. Some colors, red, yellow, dark green, black (if it is a color), reflect so feebly the chemical properties of light as to fail to decompose or reduce the film on the sensitive plate. Photography is based upon the principle that certain salts of silver are *decomposed* by the action of light. Just in proportion as the film receives the light reflected from the object, so is the deposit of the silver compound upon the plate. Simply putting it, a white collar perfectly reflects the light; the black coat reflects but little, and hence a slight action to the plate and a thin deposit. Blue, violet, and their combinations with white, strongly reflect the actinic ray; red, yellow, and their modifications, do so but feebly. So color has but little effect on the present basis of photography in the way of *repeating* itself.

In view of the wonderful things that have been given to the world in the line of invention during the last half century, I would be a rash man to say that the reproduction of colors is impossible. I think, however, that when it comes to us, it will be through the discovery of some entirely new basis or principle in photography—some color-sensitive compound entirely away from the present fundamental basis: the salts of silver.

Now concerning the alleged discovery by an eminent photographer in London: I was prompt to visit him upon my arrival in London the past summer, and was, I confess, surprised at the results exhibited as the outcome of "twelve years of study, experiment, and chemical research." The awful nomenclature adopted by the artist both in his verbal and written comments would impress one with the belief that something novel, to say the least, would be forthcoming. Introducing myself as connected with *The Art Amateur*, and giving no intimation of my occupation as a photographer, I was led into the dimly lighted apartments where the pictures were to be seen. Here were a few indifferent hand-colored photographs, such as are done (the coloring) for twenty-

five to fifty cents in most establishments. After coloring they had evidently been, as we term it "Glacéd," or given a fine finish by being laid down upon glass with hot gelatine, and then when cold stripped off; the precise thing which the fraternity in America discarded a long time ago, owing to the instability of the aniline colors, or as this inventor designates them "the hydrocarbons." Noticing duplicate pictures of the same subject, I innocently remarked that "it must be arduous to a subject to be obliged to sit for each picture as one must do, I suppose, to get the natural colors." Here followed a cyclone of big words—a few of which my early experience as a reporter, and his circulars, enabled me to secure. Placing his hand impressively upon me he said: "The color rays affect the negative plate in a latent manner, so that they may be made manifest afterward when a proper medium for their appearance, either selective or otherwise, is provided." . . . . "Therefore, the positive plate (which is *paper*) being prepared, these vibrations of color, stopped off and stored up in the negative film, are allowed to become active on the positive film when the exposure again to light (under the negative) takes place!" . . . . "At this point the positive, in conformity to the general idea running through the whole process like a beautiful thread of exactitude, takes up the rates of vibration and the qualities of the vibrations of the negative in a complementary manner, and gives to the positive plate all the characteristics of molecular condition (including latent color vibrations) that it would have had without the intervention of a negative. It is the true idea of the conservation of energy; it causes the already vibrating molecules to take up and swing in some complicated manner with those particularly absorbed rays!" And so on to the verge of lunacy.

If we could reduce the above to simple text, our friend claims that he stores up color vibrations as one would electricity, and the negative thus loaded, fires off color when used to print from. The sitter I took to him had a rich complexion, and was dressed in crimson velvet waist, and suitable accompanying colors. Whether the nega-

tive forgot to do its work, or the color had leaked out, I do not know, but the "proof" was precisely what I would expect from the subject if photographed in the ordinary manner, although assured that the "greatest opportunity had been given for the various interactions, actinic, photochromatic, and selective, to offset themselves according to the original vibrations (color and otherwise) to which the beautiful sitter was subjected during the sitting." I retired to think it over.

I fear that "Photography in Natural Colors" is not yet at our command—from this source.

### NOTES FROM LONDON.

BY T. C. HEPPWORTH, F.C.S.

THE degree of importance to which photography has attained in England may be partially judged by the circumstance that the *Swiss* newspaper has devoted no less than a column and a half to its account of the exhibition just opened in London. This is the annual exhibition of the parent society, the Photographic Society of Great Britain, a medal from which ranks somewhat higher than those competed for at provincial shows. Well, the exhibition is a good one, and all are represented there, from such veterans as Vernon Heath and Valentine Blanchard, to the newly fledged amateur. And here professionals and amateurs meet on common ground, for there are no classes or divisions to separate them, and the question, "Is he an amateur or a professional?" is frequently heard from the visitors.

The exhibits number 700, including nearly 100 entries devoted to apparatus, so that the show can hardly be regarded as a large one. This is due, no doubt, to the wise discrimination of the hanging committee, at least, so I judge from the very small number of poor pictures which are present on the walls. Too often one has, in these exhibitions to wade through numbers of mediocre productions before discovering a gem. But here the gems are plentiful and the duffers scarce, and the Society has done well in thus exercising some firmness in their choice. The Platinotype Company should "skip like a ram," if their dignity should admit of such

an undignified action, for platinum prints abound in such profusion that the walls are gray with them, and this is the first thing that one notices in glancing around the room. Red and purple tones have disappeared; their sun has set, and a pearly gray twilight has succeeded them.

Another noticeable feature is that many of the pictures, including one at least which has won a medal, are from paper negatives. And this reminds me that the Eastman Company exhibit two life-sized full length portraits, each picture being about eight feet high. They are naturally more wonderful than beautiful, but they show what photography is now capable of. Of the pictures in detail it would be out of place to speak here, and bare descriptions of such works is sorry work. I only wish that it were possible to transport the whole exhibition to New York in order that our cousins there might see what good work we are doing over here. There seems to be a growing tendency toward large negatives, and this, I confess, I am inclined to deplore. Life-sized heads are not so satisfactory as those of more moderate size, and the fuzziness common to the portrait lens is more noticeable when a certain limit is overstepped. What I mean is this. When in a cabinet picture a man's whisker furthest from the lens is a little out of focus the fault is not observed, but when the head is represented about six times that size, the off whisker looks like so much wool. The pictures, as a whole, are choice ones, and a large proportion of them prove that their creators possess much artistic feeling. I am inclined to think that here the profession also owe much to the amateurs. Where a number of educated men with leisure at their disposal, take to any particular branch of art, they are sure to improve the position of that art, and to induce a demand for the highest qualities which it can afford. The exhibition is open daily, and on three evenings a week; upon one of which evenings lantern slides are exhibited by the lime-light.

The exhibition is extremely rich in specimens of photogravure. Where a picture produced by this beautiful process is a copy of a steel engraving, it is simply impossible to tell the copy from the original. But the

greater number of these are copies of drawings or paintings, and every line, every brushmark, is most beautifully reproduced. Nor must I forget that much of this class of work has been helped by the introduction of color-sensitive plates. There are many exhibits which show the capabilities of this orthochromatic process, and it is certain to be much used in the future. I am certain, however, that for many colored subjects ordinary plates will do far more than most photographers give them credit for. I made an experiment the other day with a view to find out to what degree an ordinary plate would respond, when considerably treated, to the call I made upon it to reproduce an oil painting. The painting was kit-kat size; the three-quarter length figure of a lady in a red velvet dress, a pink rose in her hair, and the lights were generally mellowed to a warm tone, for it is forty-five years since the painting was executed. Time has left its impress upon it both in this warmth of tone, and in innumerable cracks, which last, however, were useful to focus by. I waited until five o'clock in the afternoon, on purpose, to get a reddish light to work by. I then placed the painting in full sunlight, but facing a dead wall so that there were no disturbing reflections from its varnished surface. I used a Ross portable lens of 8-inch focus, and a 10 x 8 camera. The lens was stopped down to its smallest diaphragm, and after sponging the surface of the painting with glycerine and water, I gave an exposure of forty seconds. The result is a great success, and I feel confident that a better one would have been impossible with a specially prepared plate. I trust that this experience may be serviceable to some of your readers who may be called upon to do picture work.

Returning to the exhibition let me make one more remark. There is a frame of most lovely Alpine views by Jonkin. His excellent snow scenes are well known for their beauty and technical excellence. But these particular ones are printed upon Obernetter chloride paper. The effect is simply charming, the tone perfect, and the surface of the paper is so fine that it exhibits no grain whatever. It has often been remarked that a photograph never looks so well as when

printed upon glass or opal. This paper seems to be equal to either, without the great drawback of brittleness.

### DIRECT TRANSFORMATION OF LIGHT INTO ELECTRIC ENERGY.

INSTANCES of the indirect transformation are not new to the physical investigator, and a record of one of the first is to be found in the now classic work on the correlation of the physical forces written by W. K. Grove (now Justice Grove) when he was a young man. Special interest, however, attaches to some recent experiments by Kalischer, in which he describes a selenium cell which, when exposed to light, gave a permanent electric current.

Before quoting the abstract of Kalischer's paper, which appears in the *Journal of the Chemical Society*, we may say a few words in explanation of the nature of the physical organisms known as a selenium cell. The selenium cell consists essentially of two conducting wires separated by selenium, and it has long been known that, when such an organism is placed in an electric circuit, exposure of the selenium to light means a diminution of resistance, or, in other words, that selenium conducts electricity better when exposed to light, and in some sense this increase of conductivity is proportionate to the intensity of the light. Indeed, several proposals have been made to practically use a photometer based on this action of light on selenium.

In practice, the selenium cell consists of two metal wires coiled side by side on a cylinder of glass, or other non-conductive material, care being taken that the two wires, though very close together, do not actually touch. A thin film of selenium is then melted over the whole, so that it runs into the interspaces between the wires, after which the cell is exposed to such a heat as shall bring the selenium into the best condition of sensitiveness.

Since the telephone has been a recognized instrument, Graham Bell has pointed out that when a selenium cell is exposed to rapidly recurring impulses of light, corresponding impulses of electricity circulate through the connected wires of the selenium

cell, and special interest attaches to the present observation of Kalischer, as it may be one element in a train of discoveries which may lead to such a complete transformation of light into electric energy as shall be of practical advantage to mankind.

The abstract of Kalischer's paper, as we find in the organ of Chemical Society, is as follows:

"About the same time that Bell discovered that an intermittent exposure to light generated a current in selenium which affected the telephone, the author met with a selenium cell which, under the action of light, produced a current which could be detected by a galvanometer. As it appeared that those who have paid special attention to the preparation of selenium cells have seldom met with cells which were so sensitive to light, an attempt was made, in the first place, to discover the proper mode of making such cells.

"The cell consisted of two parallel wires wound round a stem, with selenium melted between them. In order to insure the sensitiveness of the cell to light, it was heated to 190° to 195°, kept at this temperature for half an hour, and then allowed to cool for an hour. If at first not successful, a repetition of the process produced the desired result.

"When such a cell is inserted in a galvanometer circuit and exposed to the action of light, there is a permanent deflection. It is found that the cells which are sensitive have a large specific resistance. To produce a current in general, a very intense source of light is necessary. The sensitiveness, and with it the specific resistance, were found in many cases to diminish with the time. The author believes that these facts are very well explained by the hypothesis advanced by Siemens that there is a metallic modification of selenium.

"Again, if a cell is placed in an arm of a Wheatstone's bridge and the balance obtained in the usual manner, on allowing light to fall for an instant on the cell there is a deflection, but the mirror does not return to its position of rest at once, and gradually creeps up to a fixed position. This is not due to the effect of heat, for it occurs even when the cell is shielded by an alum

cell, or by a current of water circulating round it.

"It is proposed to call this phenomenon after-action, from the analogy it presents to other well-known physical facts. The analogy is traced out by showing that the after-action is dependent on the duration and the intensity of the illumination of the cell. It is also shown to be independent of the direction of the current."—*Photo. News.*

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### OUR PICTURE.

OUR landscape-loving readers will welcome the gem which embellishes our current number. The negatives were made by Dr. Edward H. Williams, of Philadelphia. When we first knew Dr. Williams he was the general superintendent of the Pennsylvania Railroad, and resided at Altoona. One of his friends then was Mr. John Carbutt, who, at the beginning of our mutual acquaintance, was a resident of Chicago. Since then Mr. Carbutt has changed his residence. We have pulled our humble magazine through nearly a quarter century of halftone, and Dr. Williams has become not only a world wide traveller and locomotive builder, but one of the most enthusiastic amateur photographers we ever knew, though more than half a century old now. Wherever he goes his camera goes, he recently told us; and he says it has afforded him pleasure without end.

He uses it only to please his friends, and to "live over" his journeyings. When we applied to him for some of his lovely views of California for our picture, he at once gave us a choice. When Mr. Carbutt asked him for a title for the picture, he wrote as follows:

DEAR MR. CARBUTT:

Your "Postal" of 1st inst. just received. The negatives to which you refer were made upon the "Ellwood" Ranch, some 15 miles up the coast from Santa Barbara, California; and a title embodying that fact would be appropriate: "'Ellwood' Ranch scenery, near Santa Barbara, California."

I think I sent you, some two or three months since, some memoranda for Mr. Wilson, to the following effect: In April

last I passed a few days at "Ellwood" Ranch, the residence of Mr. Ellwood Cooper, situated in the vicinity of Santa Barbara, California. While there I exposed ninety-two Carbutt B plates in open fields, among orange, olive, and walnut groves, and in deep ravines, glens, and forests, and I secured ninety-one excellent negatives; the other would have been equally good, but I undertook to develop the plate bottom up, and failed ingloriously, or rather, succeeded in spoiling it.

EDWARD H. WILLIAMS.

You have before you, then, only a view caught on the way, by a hard-working, much busied gentleman, but withal a fine bit of our Pacific coast scenery to cheer the chilly days so nearly upon us.

The plates used by Dr. Williams were Carbutt's, so much used and so popular among outdoor workers. The prints were made by Messrs. Roberts & Fellows, Philadelphia, on the N. P. A. paper imported for us by Messrs. E. & H. T. Anthony & Co., 591 Broadway, N. Y.

Our readers will notice that we have used the "India-tint" card upon which to mount our picture. At the Chicago Exhibition the pictures of Mr. S. L. Stein, of Milwaukee, were universally admired for their neat and tasteful finish. They were mounted upon *India tint* cards. Mr. Landy has also employed them for his prize picture "Man Know Thy Destiny," with splendid effect. The publishers of the best photographs of paintings and works of art which come to us from abroad are mounted upon India tints. Nothing is more tasteful. No card so harmonizes and gives value to the photographs. They have always been a favorite with us, and we are glad to see a tendency among photographers to return to their use. And thus we felt warranted in placing a fresh example before them.

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### ANOTHER STANDPOINT.

BY M. H. ALBEE.

As I wish to do all I can for the advancement of photography, I write my views as to what use the title "Artist" should be employed.

"Photography from one point of view," in the August number, is a very well worded article, and no one will take exception to his objective point that he strives to arrive at, for it matters not what means are employed by any one to produce a thing of art, for when the thing is done, the result, so far as the spirit or motive power is concerned, is there impressed without a contradiction; but it does make a difference in many minds as to the tools used.

The machinist takes the idea of the inventor who has conceived in his mind the work of art, before he has touched pen or pencil to paper to convey his creation to the operator who by laborious means, slow and toilsome, completes it in tangible form. So our eyes and mind realize what the inventor evolved in his mind, and pictured these with no other audience to contemplate it but himself, until his master mechanic took it in hand, finished and formed it into a thing of beauty. One is the originator, the other the moulder of that thought, which must be made a tangible thing to desire all the blessing of such a creation. Yet who will deny the title of artist to either of them? But how often do we hear the word applied to them? Very seldom; only by those who can see artists in all the duties of this life. Some of greater worth, others barely possessing enough to be distinguished only on the closest inspection; and others, the great majority of whom are overlooked as being only drifts on the sands of time. Yet if they are singled out, and their accomplishments known, there would be but few to dispute the title with them.

But I believe the title of artist a more sacred thing than this universal application, and should only be used and applied to those who have first created the thought which they have made manifest in wood, iron, and stone, or transcribed to paper, canvas, or through some medium that becomes intelligible to mankind.

So many get the credit of being what they are not, because of the potent power of wealth, and the persistency of individuals in adopting the title, which always will be, so long as there is no one to challenge them, and show cause why they stand where they do.

The public is not so well versed in everything as to decide this matter. It must be the experts, as it ever has been, and then the public will fall into line as readily as the sheep follow their leader.

As in the past experts may be arbitrary, and not do the just thing, in which case the public, when well informed on the matter, will right it by their public sentiment, as well as when ill-informed they applaud that which is not deserving of it. Now, rather than worrying over a thing which depends much upon the financial condition of the craft where there is such a latitude for inferior workmen to enter a calling as well as those who have fine perceptions of feeling together with great ability to execute, and who may truly be called artists, if I say, they would only come together and formulate something like what our Canadian brethren have done, it would be but a short time, compared with the way the photographers of America have done, to being recognized artists. But so long as there is no action to bring up the lowly in the craft, there will ever be a source of trouble hard to combat.

To be sure there are those in the craft who have dispensed freely of their knowledge and opinions for the benefit of the whole, that photography may be elevated to the position it is entitled to.

Witness the two volumes of information in Wilson's *Photographics* and *Quarter Century*, as well as the flood of information in the photographic journals of the day. But this is not all that must be done to put photography where she belongs.

Union among its workers is now the connecting link which leads to success.

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### TECHNICAL EXCELLENCE.

THERE has been a sort of fashion amongst some writers on photography, to speak in a slighting, indeed, almost contemptuous manner, of what is called technical excellence. It has been sometimes assumed that obtaining excellence in what they refer to as the mere mechanical details of photography, is so simple and easy, that it is not worth while to speak of the means by which such excellence may be insured, but that



there only remains to devote attention to what is called the art side of photography. It is because we think that such teaching is detrimental to the progress of photography, and, indeed, tending to that retrogression to which we have recently referred, that we propose to discuss the necessity for technical excellence in order to obtain not only that which shall be recognized as good from a purely photographic point of view, but the most complete artistic result also.

We do not propose here to enter upon the field of art criticism, which, by the way, was referred to by one of the recent comic papers as the last resource of the man who was plucked in his examinations, and turned out an utter failure at college. It may fairly be stated that art recognizes two distinct characteristics—the imaginative, and the descriptive. In photography, the imaginative is a good deal replaced by the ability to recognize the beautiful, the grand, the sublime, or the picturesque. The painter who places upon the canvas a true portrayal of sky, sea, and foliage; the poet whose writing brings to the mind's eye a vivid representation of the beauties of nature; the actor whose presentment of human passions impresses his audience with the actual presence of the feelings which he counterfeits, would all be admitted to be artists. On the other hand, one gifted in a high degree with the imaginative faculty, unless he possesses the skill, natural or acquired, to set forth his ideas, must remain unfruitful and unrecognized.

If, then, accurate or truthful representation is recognized as art in the cases to which we have referred, it is hard to see why it should be ignored as art when photography is in question. Perhaps the reason for this different estimation is, that it is taken for granted that photography must yield a true representation, and that, therefore, no skill is required to insure this result, and so where there is no skill there is no art.

The assumption that photography must be truthful, if it is justified when applied to a production technically excellent—*i. e.*, free from defects—is certainly not tenable with regard to a photograph in which defects and blemishes have been allowed to make their appearance. An example will make this

evident. One very common defect in a photographic negative is the appearance of stains, patches, or messy places, due to irregularities in the development, or to other preventable causes. These defects show themselves in their negative ugliness when they appear in the plain background of a portrait negative. The patchy lights and shades which they produce are not to be seen in the original background itself. Therefore, the photograph is not a truthful representation. True, it may possibly be argued that a "broken" background is more "artistic" than one quite plain. Stains and messes, however, have no elective affinity confining them to the background, and, but for the details on the rest of the plate disguising them, they would probably be seen over the face, drapery, and other parts of the picture. Now, although these stains, owing to this disguise, may not show themselves as what they are in the detailed portions of the plate, it is certain that they must cause the particular places where they occur to come out lighter or darker than their proper value, in relation to the surrounding portions. Stains and patches have thus done their work in falsifying Nature, without our being able to detect the exact amount of increased light or shade which is due to this haphazard means, and we have to accept a defective presentment as a true representation. In landscape photography, with its varied forms of sky, foliage, and foreground, a great deal passes muster that would insure the rejection of the photograph in plain portrait work; but this passing muster does not imply the goodness or the truthfulness of the representation of Nature, but only that we cannot so easily detect what is the true representation, and what is the accidental misrepresentation, due to imperfection in the photograph.

Photographic defects of other kinds might be adduced as causing untruthful and imperfectly artistic results, such as under-exposure, with its concomitant large, heavy shadows wanting in those bits of quiet illumination that are so evident in nature; but enough has been said to show that the highest artistic excellence can only be looked for where what is called technical excellence is also present; whilst a high de-

gree of the latter-mentioned quality will render most work interesting.

As to the assumption that technical excellence is so easy of attainment that it may be looked for as a matter of course, and does not require to be cultivated, a careful inspection of the photographs shown at any of our annual exhibitions should suffice to dissipate such an idea. Of the landscapes exhibited, it is not too much to say that one defect alone, halation, is shown in the greater part of the exhibits. Those who would excel artistically, as well as those who have less ambitious aims, should cultivate with unceasing care that technical excellence which is in reality displayed by only a very small proportion of photographers.—*Photo. News.*

[Translated for the Philadelphia Photographer.]

## INTERIOR PICTURES.

BY CARL SRNA.

Who has not noticed the charming effect produced by a tastefully arranged room? Who does not know the exalted feeling produced on entering a cathedral with its gigantic pillars and its half-gloom, causing one involuntarily to bow in reverence? Who has not stood on the ruins of a grand old structure, with broken columns and ivy-covered walls, and has not reflected on its past magnificence and glory?

And all these impressions which the human heart receives and keeps, and which live ever in its memory, until dispelled by new and mightier feelings, awake with renewed strength on viewing a portrait which brings before our spiritual eye long past times, and stirs within us the remembrance of many joyous and yet, alas, often of many grievous hours also.

If I introduce this article with such reflections as these, it is because the conviction is forced upon me that it is not quite right to neglect taking pictures of interiors, since dwelling-houses and other structures play no insignificant part in the life of a man; and how much a man would often give could he have a picture of a certain room, where a turning-point in his life took place.

Every amateur should, therefore, not

neglect to take a picture of his home, for even if such a picture should have no particular interest at the moment, yet in course of time it might be valuable.

Owing to the technical perfection of our present photographic apparatus and objectives, and by the use of dry plates, it is very easy to take faultless pictures of dwelling-rooms, and full play is left to the artistic taste of everyone in this respect.

For taking pictures of interiors, ordinary objectives with very limited picture-angle cannot be well used, but rather short-sighted objectives with very short focal distance and very large picture-angle, the so-called wide-angled objective.

There are differently constructed objectives of this kind, of which Ross's rapid symmetrical objective, Dallmeyer's wide-angle rectilinear objective, and that of Francais's, also Steinheil's, wide-angled aplanat, and Voigtländer's wide-angled euryscope, are most to be recommended. These named objectives possess a picture-angle of over ninety degrees, and produce a perfectly correct picture, without any distortion.

Before proceeding definitely to the taking of the interior, the lighting of the same must be arranged as favorably as possible. Since the windows of the room generally serve as the only source of light, and through these a great deal of light comes in so that the parts of the room nearest the windows appear intense, while the inner parts are too dark, an exposure of the developed plate under such light-proportions would, in the strongly lighted parts, show solarization, and in the darker portions there would not be enough details shown.

Now, to avoid too great a contrast of light, and to obtain, as far as possible, a uniform lighting of the interior, it is necessary to use curtains to soften the bright light from the window; or, better still, colored tissue-paper.

In dwellings which, as is generally the case at the present day, show a tasteful arrangement of various colors, besides tapestries, oil-paintings, water-colors, bouquets, etc., only the orthochromatic process should be used as regards the proper production of the value of clearness. In portraits of

picture-galleries, also of churches with colored glass windows, and most re-darkened portraits of old masters, this is absolutely required.

Now, since the lighting must be guarded against too much contrast, as I said before, I have used with good effect yellow, and, indeed, even oiled-silk paper, for softening the bright window light.

The yellow light which comes through this yellow tissue-paper being dispersed through the whole room, makes it possible to dispense with the yellow disk in the orthochromatic plates; and permits, moreover, of the brightening up of the too dark parts by placing petroleum lamps as favorably as possible, concealing them by the use of folding screens or other furniture; and these lamps, conforming to the other lighting, brighten up the darker parts with yellow light also. In this way I obtained, with the erythrosin-bath process of Mallmann & Scolik, the finest results.

It is self-evident that in taking pictures of large rooms with high windows—as churches, etc., where it is not easy to cover the window-panes with yellow tissue-paper—the yellow disk must again be brought into use.

Another important point, in order to obtain beautiful effects, is to be careful, in taking pictures of interiors, that the sun's rays do not fall directly into the inside of the room, but only touch the windows.

When it is possible, I generally take dwellings with evenly but lightly clouded sky; and by this means, even if the exposure is decidedly prolonged, I avoid too sharp a contrast of light.

And now to come to the taking itself. It is a matter of strict necessity that the camera should be perfectly horizontal, so as to avoid markings and distortions; and, when possible, it should be set up at least to the height of one-third of the room to be photographed; and in choosing the point of view, care should be taken to have the objective out of the reach of the light coming in through the window, and that the principal object to be taken should not be placed exactly in the middle of the picture, as this would destroy the symmetry of the picture and make it ugly and not picturesque.

The horizontal position of the camera should be tried with the spirit level to find out if the sight-disk and objective-board are just parallel to each other, and that both stand perpendicular to the ground-board of the camera.

Concerning the putting of the picture on the sight-disk, it is often very difficult to do, notwithstanding full objective-opening—owing to poorly lighted rooms, and in consequence of the weak light, wide-angled objective used, in many cases only a slight trace of the picture being visible.

In this case it can be done by the aid of a burning candle. To make this effective some one should hold the candle as high as the objective, and move it slowly along the side of the wall in front of the camera until its flame can be seen on one of the side ends of the sight disk; now it can be known exactly from which point of this one side the picture of the interior appears upon the sight-disk. Then the second side of the picture must be obtained in the same way, and then the floor and ceiling, and then everything that must appear upon the plate is ascertained.

For the definite setting up the candle should be held midway from the objective to the background, and also midway between floor and ceiling, then the flame of the candle is held full on the room, and then extinguished. In this way a thoroughly *sharp* picture is obtained.

The time of exposure should be reckoned according to the darkest parts of the room to be taken, and generally very plentifully. An overexposed plate can be corrected in the development, but a too little exposed plate cannot, as a rule, be changed, owing to the great contrast between light and shade.

In general, pictures of interiors suffer from the fault of a too short exposure of the less lighted parts.

In this place I will speak of an entirely wrong idea held by many amateurs, having had opportunity to notice it again this very day: Many amateurs are of the opinion that underexposed negatives can be strengthened—but this is quite erroneous. Only those negatives can be strengthened which show all the details in the shades, and which have

not reached the required strength owing to too short development, as is often the case with overexposed plates.

If one wishes to strengthen a plate not sufficiently exposed, he only makes the glaring contrast between light and shade more apparent, the high lights being much too dense, without causing the deep shadows to have any more details whatever.

Concerning the plates to be used, it is not of advantage to use highly sensitive plates; it is safer to work with less sensitive ones, and for interior pictures an iodo-bromide emulsion is preferable to the pure brom-silver plates, since one is less liable with the former to the danger of solarization in the intensely lighted parts.

In choosing a station from which to take a picture of a room care should be taken that the openings of the window curtains do not come upon the picture, because they would be quite opaque in the negative, and often spread themselves over the limits of the deep shadows like the halo around the moon, and this proceeds from the reflection on the back of the negative glass. Interior pictures do not show this evil, consequently on negative paper, Mr. Valentine Blanchard gives, in PHILADELPHIA PHOTOGRAPHER, this advice: To avoid this reflection rub the backs of the emulsion plates (using the finger or brush) with as far as possible, non-actinic color, as common or burnt sienna; this is then rubbed in dry upon the glass side of the plate; that this must be removed before development is self-evident.

The development of interior pictures must be done with pyro developer, and it is advisable to use this in strongly diluted condition, because it is ordinarily necessary to develop long, so as to bring out the details of the shadows and half-tones. The iron developer is absolutely not to be used.

The ordinary soda developer, according to Professor Eder's recipe, is to be recommended.

#### Solution I.

Sulphate of Soda, crystallized	100 gr.
Distilled Water . . . .	500 "
Pyrogallol . . . . .	14 "
Sulphuric Acid . . . .	5 to 10 drops.

#### Solution II.

Crystallized Carbonate of Soda,	
chemically pure . . . .	50 gr.
Distilled Water . . . . .	500 "

The sulphate of soda is dissolved in cold distilled water by shaking, and then the pyrogallic acid is added.

For the use of interior pictures a volume of Solution I. (pyro solution) is mixed with a volume of Solution II. (soda solution), and three to four volumes of distilled water. While in the normal soda developer equal parts of Solutions I. and II. and distilled water are used in development of interior pictures; this is diluted, three to four parts of water being used.

The negatives appear very distinct by the use of this strongly diluted developer, and are well worked through in all parts.

After development the plate must be washed off well, and laid for a minute or two in a bath of concentrated alum, which takes away the yellow color of the plate. Then it is washed again, and then fixed.

If in spite of all care, some light from the windows has come on the picture, then Prof. Vogel's method of partial weakening of too thick spots in gelatine negatives can be used.

For this purpose the dry negative is dipped in water long enough to be well wet through; then the parts which are not to be weakened, are dried with blotting paper; and upon the parts to be weakened, a mixture of 100 c.cm. (1:10) fixing soda, and 5 c.cm. (1:5) red blood alkali solution is put on with a brush. The cliché must be held horizontal during this procedure, and by holding a looking glass underneath the progress of the weakening to the desired degree can be observed. This happens after a few minutes, and then there remains only half an hour's washing of the plate with water.

A further means of obtaining a serviceable copy of strong negatives, rich in contrast, is to cover the cliché upon the glass slide with Pan's (puffed) paper, leaving free only the parts that are too dense, or instead of tissue paper, weak varnish could be used, in which case the process of retouching on the back of the cliché furnishes no difficulties whatever.

Charming interior pictures can be obtained also with Goldmann's detective camera, this having a wide-angled rectilinear objective suitable to pictures of this kind. Since it is not necessary to set this camera up, it is possible to take pictures of churches, etc., unobserved, and our member, Mr. Carl Ulrich, has obtained, in this respect, extraordinary results.

Finally, I will make mention of still another new process for photographing interiors, portraits, and groups, and that is by magnesium light.—*Photo. Rundschau.*

### A SIMPLE AND SAFE MEDIUM FOR RETOUCHING UNVARNISHED DRY PLATES.

BY KARL KLAUSER,  
Farmington, Conn.

THE usual modes of deadening the negative surface in order to get a "bite" for the pencil are either by roughening the surface with finely powdered pumice-stone or by rubbing over some liquid preparation, like turpentine and gum dammar, etc. Now, while these methods will do well enough for varnished surfaces, the unprotected dry plate may suffer from the dry powder from scratches, and the liquid application has its drawbacks from not being "instantaneous" enough for our times.

The method I would suggest for producing the desired "matt," is by crushing and powdering on a glass plate a small lump of rosin, and adding to it about a third of its bulk of ashes of cigars or cigarettes. If you don't smoke yourself, your next friend will furnish you the materials. This addition is to neutralize the too sticky quality of the rosin. Put the mixture in a bag of old, well-washed muslin; daub the part to be retouched with it until a very small quantity of it settles on the negative, and finish by rubbing lightly with your finger over the desired part. A surprisingly small part of this dust will be found sufficient to completely deaden the surface and render it fit for the pencil.

### PRINTING PERPLEXITIES.

AN Italian photographer, Mr. Tagliacozzo, who has worked a long time in Lon-

don, makes known a method, which he has discovered in his native country, to keep for as long a time as may be wished sensitized albumenized paper, without its undergoing any change of color. To obtain this happy state of things, for which so many incomplete methods have already been given, the author of this communication says that it suffices to prevent any white or actinic ray to come in contact with the paper.

When the paper becomes yellow or brown it is simply because it has been exposed at some time to the influence of white or actinic light, the action of which is continued even in the most complete obscurity. It is, therefore, absolutely necessary that this paper should never see a ray of white or actinic light. All the operations should be made in a room having yellow panes of glass, which only allow the passage of inert light.

This is the mode practised by Mr. Tagliacozzo. He can see in the laboratory even the smallest objects; but inert light alone enters there, and the sensitized albumenized paper prepared in this manner may be kept as long as desirable. It is true that it loses a little of its sensitiveness, but it remains perfectly white. Moreover, the silver bath is always at 60°, and the prepared paper remains in the room with the yellow glass until used.—DR. PHIPSON.

KEEPING OF ALBUMENIZED PAPER.—Sugar in the printing bath is affirmed to make sensitized paper keep for a longer time without turning yellow, and also the addition of borax to the albumen before applying to the paper.—M. CAREY LEA.

THE SILVER SOLUTION.—The water for this is conveniently provided for, thus: Take two gallon bottles, fill them with hydrant water, in which you pour enough permanganate of potassium to turn the water deep violet. Stand the bottles in the open air or sun for several days until clear as crystal. Of course, arrange it so as to have the bottles clear alternately.

The bath should be kept sixty grains strong in cold, and fifty grains in warm weather. When tested the blue litmus paper should turn slightly pink, but very little. By keeping the bath in its proper condition, one drop, or two at most, of

either acid or ammonia will suffice to give the litmus paper its proper color, slightly red, but very little.

Keep the silver solution in wide-mouth bottles (jelly glasses so called), as they are easily cleaned with warm water and a cotton swab. If two baths are on hand they should, of course, be used alternately. When through silvering, add three or at most four drops of permanganate of potassium to the bath. But do not add more than four drops of same, as it will precipitate the silver, which must be avoided.

Stand the bath in the printing window. It will clear in one day, and can be filtered as clear as distilled water. You can use it without filtering, if it is poured off slowly, but as filtering is a surer method, I always filter.

*Trays.* When rubber trays are used it is advisable to coat them with beeswax or paraffine, as they sometimes peel off on the inside. Another advantage is, the solution does not adhere to the tray, and the tray need not be washed out every time it is used. The coating is done in different ways, the following being the best: Heat some beeswax, pour it into the tray and iron it down, with a warm flatiron, thoroughly on the bottom and sides of the tray. The same treatment, more thoroughly carried out, will make wooden trays recommendable for silvering. The wax is better than asphaltum, which is generally used in wooden trays. The bottom of the tray should be of one single piece of wood. The wax must be more thoroughly applied to corners and crevices of the tray, and pressed into the pores of the wood. The outside of the dish requires the same treatment.

Wooden trays lined with oil-cloth are extensively used.—CHARLES KRAUSS.

It is a mistaken idea to suppose that a print is entirely finished, as far as the action of sunlight is concerned, when you remove it from the frame, and find that everything has worked in admirable chemical order. Before you immerse it in water or commence your toning operations, can you not often see how that picture can possibly be improved, and do you not sometimes have the means readily at your disposal?

Obtrusive parts can be subdued, a flat background can be beautifully graduated, and imperfections reproduced from the negative can often be hidden by the further use of that wondrous agent, "sunshine."

Can we not cover over a portion of our print with shields, protecting such parts from further action of light; and can we not, by the aid of variously shaped boards, make such exquisitely graded shadows that would defy imitation by any other means of production?

Again, are we not able to extend our sphere of action, and ceasing to accept it as a law that one negative will make but one description of picture—can we not use several plates, and combining the utility of each, can we not produce photographs that not only puzzle the uninitiated, but cause the thinking and intelligent workman to study and to admire? The most simple and easily understood form of composition printing is that used in the manufacture of the very popular and pleasing style of cut-out photographs. This is generally confined to the cabinet or imperial and the carte de visite size, although it is equally available for any larger work. As a usual thing, the entire effect can be described as a portrait, limited to the head and shoulders only, with either a very light or very dark background, the combination oval in form, and then surrounded with a flat tint, contrasted from the central oval by its difference of shade. These pictures are so thoroughly different in character from the ordinary vignette, that ourselves and the public have been so long accustomed to, that the latter accepted them as a novelty, and it is now my own experience that they have almost superseded all other styles, where no more of the figure is displayed. In this, as in every other class of handicraft, careful workmanship is necessary for successful results.—JOHN L. GIBON.

A VERY simple and reliable plan of making the enamelled or glacé photographs is as follows:

A sheet of any smooth-surface glass (plate is best) is cleaned by any of the usual photographic methods, then rub over the plate a solution of alcohol containing about five drops of nitric acid to the ounce; rub over

the glass and polish with a dry piece of Canton-flannel; finally, dust a little soap-stone or French chalk from a small, muslin-covered box containing the chalk; brush it off lightly with a clean piece of Canton flannel—be careful not to rub hard, as in that case the chalk would deaden the polish of the glass plate. This done, the glass is then coated with plain collodion—five grains of cotton to the ounce of equal parts of alcohol and ether. The plate is then allowed to dry, and can be kept in this state any reasonable length of time; when dry, lay the plate upon some level place and cover with a solution of plain gelatine about the consistency of cream, at a temperature of 90° or 100°. Allow the plate to lay flat until the gelatine sets, which will depend on the temperature of the room.

When dry, stand the plate (or plates) up to dry, and store them away. In this state they will keep indefinitely, and it is well to keep a stock on hand in this condition, as pictures can be mounted in a few moments.

To mount the pictures, lay one or more of these plates upon some level place over the sink, so that the water to be used will have free escape to the waste pipe. Cover the plates fully with water, allowing as much to remain upon the surface as possible, lift the pictures from the water they have been washed in, and lay them face down upon the prepared surface of the plate, filling it with as many prints as it will hold, arranging them according to their sizes. Pay no attention whatever to bubbles; have a piece of thin rubber cloth and a squeegee. Lay the rubber cloth over the plates, and with the squeegee press the pictures into contact with the glass, at the same time take out all air-bells by passing it back and forth over the plate.

This done, run around the edge of the plate with a knife to take off the gelatine and collodion for half an inch; this is to allow the paper that is mounted on the back of the picture to adhere to the glass, which will thus bind the whole thing down until liberated by being cut inside of this safety edge, otherwise, the pictures would be apt to leave the glass before they are thoroughly dry, and thereby lose the brilliancy they would otherwise have if properly dried.

After the pictures have got surface dry, give them a coat of thin gelatine and cover them with a wet sheet of manilla paper, or any common paper of the same size as the plate. Then mount them with cardboard known as printers' board, because it is cheap and answers every purpose; finally, cover the whole with an enamelled sheet of paper of any tint desired, thus having an enamelled mount when the picture is finished as well as an enamelled photograph. After they are thoroughly dry, cut inside the safety edge, when the prints will come off with all the beautiful finish possible. The prints may now be stamped out with a round- or square-cornered die, or cut with a knife any desired shape. The edges may be bevelled and bronzed with a little gum-arabic and bronze, applied with a camel's-hair brush.

The whole operation is simple and not nearly so complicated in its working as it appears from the description.—JAMES INGLIS.

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### DR. PIFFARD'S PHOTO-PYRO-TECHNICS.

THE eminent dermatologist, Dr. H. G. Piffard, of New York, has for some years been interested in microscopy and photography, using both in the illustration of his professional work. The inconvenience of securing the services of professional photographers, and the removal of his patients to public establishments, caused him to make himself expert in the use of the camera. The proper lighting of subjects in an ordinary dwelling or office was not always the most desirable, so for the past ten years he has been experimenting in the production of an artificial light that would be available for such purposes. Recently he has invented, or discovered a very simple combination, which not only accomplishes all he could desire, but opens up possibilities to the professional and amateur photographer that may well be termed marvellous. It is possibly the proper thing to say that he "discovered" the elements and "invented" the compound.

On Monday evening, October 10th, at Mr. Rockwood's establishment on Union Square, Dr. Piffard furnished his new light while

Mr. Rockwood made excellent negatives in about a quarter of a second. Adults and children were photographed while laughing and talking, with the most absolute accuracy. The new light is so adaptable that a negative of a little, laughing child, was made at nine o'clock, and in less than a quarter of an hour a life-size enlargement was completed from the same negative by the new light. The results are obtained from a compound, rather than an apparatus, therefore it is portable. All the experiments of the evening were furnished from an ordinary envelope which Dr. Piffard brought in his pocket. The possibilities of this invention of Dr. Piffard are wonderful. The compound can be loaded into a pistol, and when discharged a picture can be made by its flash; this has absolutely been done. Mr. Rockwood has already devised a "pistolograph," which, when pointed at an object, can expose a sensitive plate and furnish its own light by the movement of a trigger. The darkest night, or gloomiest cave, will be no obstacle to the finding and photographing on the spot of criminals and suspected persons. Dr. Piffard has not only perfected this useful invention but, with noble generosity, given it to the world.

He prepares upon any metal dish or incombustible surface, a small pad of gun cotton (pyroxyline) covering, say, four square inches, and weighing, perhaps, five or six grains. Upon it are sprinkled from ten to fifteen grains of magnesium powder; this, when ignited by a match or electricity, will give a flash of light strong enough to make a good instantaneous photograph within ten or fifteen feet of the source of light.

Dr. Piffard explained and demonstrated his method before the Society of Amateur Photographers at their last meeting. The fact that such photographs could be made is not new, as during the past summer Vogel and Gædicke have made them abroad, but by means that are not altogether safe, as the chemicals employed are liable to explode unexpectedly. Dr. Piffard has simplified the proceeding, and makes use of means that are safe, and can be readily obtained, so that amateur photographers may find pleasure, and professionals profit, in employing this method.

## ON FINDERS.\*

BY J. H. HIGGINS, A.M., M.D.

23 BEERMAN PLACE, N. Y.

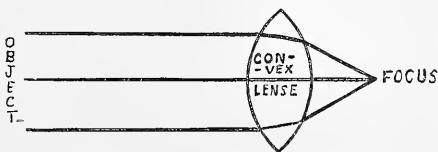
THE introduction of gelatine plates into universal use within the last few years has, by reason of their extreme sensitiveness, rendered instantaneous photography, previously a difficult matter, now one of ease and certainty. For its successful pursuit and satisfactory results, an accessory termed a *finder*, formerly of little value, has been exalted into one of great importance—in fact, is an absolute essential. Without one *approximation only* can be had as to image being in the centre of field of plate, and not infrequently it is found, not simply unhappily too far to the one side or the other, but most disappointingly not there at all. With a finder attached, all is altered, and a most gratifying change takes place. The camera having been focussed and sensitive plate inserted, of course there can no longer be any vision through it. In the finder, however, all is seen, and seen moreover exactly as present on the camera screen. If now the finder has been so placed or affixed to the camera, that its field is, as it is termed, "in register" with that of the camera, an absolutely correct determination of the proper instant of making the exposure is unerringly arrived at by inspection of the visible corresponding field of finder. Of finders there are two classes—the one, in which a *convex* lens throws an image upon a screen of (usually) ground-glass, which *image* or delineation of scenery is *fixed* and *immovable* as the camera itself, and an object traversing its field can always be correctly seen as it crosses the centre, without reference to the *position* of the *observer* or *operator*. This, the usual form of finder, is the only one of real value and utility. The other form in which a *convex* lens is affixed to the camera is worthless—for anything like accuracy. Its image (which, indeed, is quite pretty) is a negative one, formed on the dis-

\* An address delivered before the Photographic Section of the American Institute October 4, 1887, and repeated by request before the New York Society of Amateur Photographers October 11, 1887.

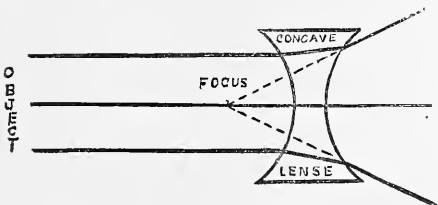


tal side of the lens, or, in other words, between the object and the lens, and cannot be thrown upon a ground-glass and there viewed. To look through it is like looking through any opening—*e. g.*, a window. It is apparent that that which you see through such opening, and its position, depend entirely upon where you stand or place yourself. It is immaterial what its shape may be, whether round or square; or again its curvatures, whether plano-concave or double concave, the image is seen in the distance beyond the lens, and the observer is simply looking as it were through a ring or opening. Such finder is virtually merely a point of support (or *fulcrum*) for an imaginary line (or *lever*) passing from the image on the distal end of the lever to the observer at the proximal end, and the image changes its position with the movements of the observer.

To render this clear, I will, on the black-board, pencil the course of light rays as affected by their passage through each form of lens.



It is seen that parallel rays incident upon a convex lens, are brought to a point termed its focus on the side of the lens most distant from the object. This focus is real, and *can be seen upon a ground-glass*, as, for instance, in your cameras. In the case of a concave lens, the same rays on emerging would be



divergent, and the eye would see an image, known as *imaginary*, upon the side of the lens nearest the object, at a point at which such divergent rays would meet if prolonged backward. Interpose at this point a ground-glass (for in the focus only of a lens is the

image to be seen) and object, lens and all, are *nil*. So much in elucidation for demonstration; endeavor with the concave lens and ground-glass which I hand you to obtain visible images thereon, and—you will fail. The cross section lines upon the lens will enable you to see more readily the restlessness, as it were, and unfixtness of the imaginary image, it moving from its position on such lines with any and every movement of the head.

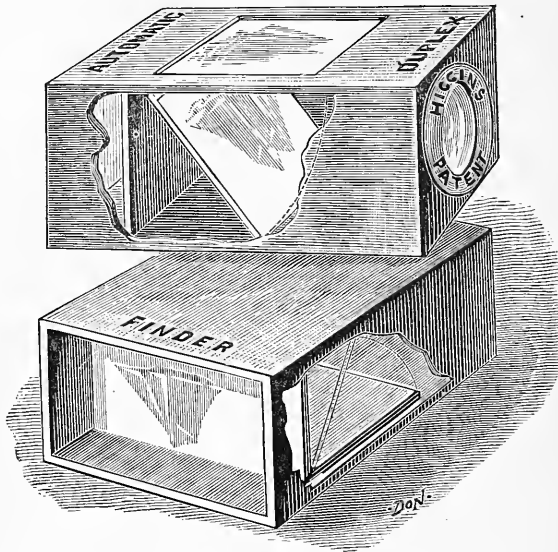
To remedy this fault no method has been found. It has been attempted by giving it a telescopic addition—it becoming *de facto* now a reversed opera-glass. The objection is there, however, all the same, only possibly in less degree, and this form, although one of the oldest and, from time to time, brought out anew, has never met with favor.

A second division of finders is into that of tripod (or with vertical screen), and portable (or with horizontal screen). In the former the screen being upright, the operator looks as it were through the finder, at or toward the object. This is the usual and most general form of finder. Of late, however, the widely extended use of the portable, or *so-called detective camera*, has caused a demand for a finder of different construction, viz., one in which a mirror deflecting the rays of light enables the image to be seen upon a horizontal screen. With this other form of finder now coming into greater use, and becoming almost equally essential, the operator holding the camera under the arm, or on the knee, or in other convenient position, *looks down* upon the field of the finder, instead of at or toward the object.

As to the qualities desirable in a finder, of whatever form or character it may be, they are—first, that it should be of sufficient size for ready and convenient inspection. Manufacturers we all find, are, alas, not practical photographers, and have, up to the present date, furnished us with finders having a field of only an inch, or even less, in size—in fact, mere toys, and practically useless. The field is so small, and focus of lens so short, that the only thing gained from their use is disappointment and non-success. The field of a finder should be of such size that a moving object can be seen *coming up* to the centre—and seen, moreover, in its

entirety, with marginal space to spare. Second, of such size that without impairment of its utility, it may be conveniently carried. Third, it should be always so made as to permit of ready access to its interior for the cleaning of lens and glasses. The finder which is shown in the accompanying illus-

or contrivance. A mirror by such reversal falls into proper position, the light is excluded from the upright screen, and the image thrown upward upon the horizontal screen, converting the *finder instantaneously into a portable or detective one*. The advantage of such construction in one and the



tration, and which I also exhibit to you, is one that a large amount of instantaneous work has proven to be eminently satisfactory. It is known as the *Automatic Duplex Finder*, is obtainable from the trade, or by personal address, and applicable to all cameras. Its field is  $2\frac{5}{8} \times 2\frac{3}{4}$  inches—focus of lens ground, with special curvature for it three inches—is of a size easily carried in the pocket, or within the camera when closed, and the accuracy attained with its use is shown in the prints which I exhibit of steamers going eighteen to twenty miles an hour, at a distance of only a stone's throw from the camera, and registered with a one-fourth of an inch margin upon  $5 \times 8$  plates. Moreover it is so constructed that it combines in itself—*i. e.* in the one instrument—both forms of finders, the tripod with upright screen, and detective with horizontal screen, the one now as essential as the other. The change is effected, almost magically, by simple reversal of the box without mechanical aid

same finder, needs hardly to be spoken of—saving of cost, alike with saving of carriage, etc., is effected. Nor, by the way, am I aware of this second form of finder with mirror and horizontal screen being furnished by the trade separate and distinct from their portable or detective cameras. Consequently, parties having the usual form of camera could not so use them. With the finder which I exhibit to you the want is supplied, and any one is at once enabled to use whatever camera he may have, as a portable or detective, without being forced to a special and costly purchase for this, the latest craze in photography.

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### THE POINT OF VIEW.

BY A PROFESSIONAL WORKER.

PEOPLE who take views—that is to say, amateur and professional photographers—may be broadly divided into the time-

honored three classes : There is the man who starts with quickened nerve to practically illustrate his incapacity by photographing a certain subject. Suppose a roadway or pathway lead to the subject ; down he dumps his camera, as if he were unloading bricks in the aforesaid roadway or pathway, and takes his random shot. The other day an amateur brought nine negatives to print. One of the plates was a view of the west front of York Minster. Of course, there is the usual road approach to this elevation, and, equally of course, this amateur had pitched his camera down in the roadway, so producing a picture with a very large proportion of macadam in a good state of preservation, a modern street lamp for principal object, and the west front of the Minster in the rear. To the right of the spectator is an iron railing about three feet high. Asking our friend why he did not make a not very superhuman effort and place himself and instrument over this railing, to avoid the gas lamp and so much of the roadway ; he did not think of it, and besides other photographers, whose pictures are in the shop-windows, have operated from precisely the same point of view as the one he had selected. His camera had been tilted, giving the old Minster the appearance of falling backward into the bowels of mother earth, with as much rapidity as it could muster under the circumstances. Asked why he had tilted the instrument to produce such a horrible abortion of an architectural beauty, and the second rejoinder was on a par with the first : unless he tilted the camera he could not get all the building into the plate. A lens of shorter focal length or of wider angle than the single landscape objective with which he was equipped—that had not for one instant entered into his calculations. He had but one lens with him, and that one was expected to do everything. People are not content to do all their amateur gardening with a rake ; they will vary their rod or their gun according to their especial pursuit ; but when it comes to a question of photography, one wretched glass is supposed to be enough for everything, and that one glass will be set up for work just as chance may dictate.

There is another class of persons who set

out view-taking, and no trouble is sufficient for them to go through before the best point of view can by any means be reached. On the top of high walls, with an elaborate arrangement to prevent an awkward fall, now on the dirty roof of some equally dirty and dilapidated building, now up in a balloon, or perched in the branches of outspreading oak ; anywhere, so a picture be secured from a point of view no one else has ever tried—or thought worth trying. A view of a subject should be easily recognized ; the recognition will not readily take place if the spectator has never seen the object from such an altitude as the eminence from which this particular one may have been taken. There are occasions when a charming view may be secured, and when no little exertion is requisite to place operator and camera in the best position. But these occasions are exceptional, and in the vast majority of instances it is on the beaten track the point will be found. Culture and thought will advise the best means for certain eliminations in the picture, for those picturesque additions which bespeak the artist who introduces them.

The third class of view-takers are those who study the picture ; only there is such a thing as studying too much, not knowing when the composition is good enough, shifting the instrument a few inches, and shifting it back again, in doubt whether change has been for better or worse, introducing patches of light drapery, etc., under the name of balance, and then irresolute whether some more balance had not better be thrown in by way of make-weight. These people would have presided to advantage behind a baker's counter. The studious man in doubt is a picture in himself. Only advise him that a certain view is best taken in the river, and straightway the camera legs are immersed, and the doubtful man, having divested himself of boots and stockings, is immersed likewise as far as his knees ; and even then he is not happy. If he could only get to the opposite bank, the picture would be one of the most charming ever composed, with some swans introduced by way of balance, and an old Dutch fishing-boat on the other side to make contrast or more balance. The doubtful man is not at all

particular, but if some one kindly points out a pyramid in his picture, he will take unto himself much credit for having elaborated the study at considerable cost of time and thought.

Why is it so many young view-takers commence operations with the instantaneous shutter, and then marvel how it is that the whole subject is doubled or blurred beyond recognition? Some landscapes were recently examined, and each one ruined by an incapable hand bungling with the shutter. It is difficult enough for the novice to choose the proper point of view; why add to the difficulties by adoption of a shutter which will take a practised hand to manipulate satisfactorily. "Learning to speak slow: all other graces will follow in in their proper places." This advice will apply to other arts besides that of oratory.

In selecting the point of view, shun too much road, path, river, or smooth surface of any description. If there be no means of leaving such monotony of tone out of the picture, break up that monotony by introduction of figures, or any one of the countless resources of modern civilization. Remember it is by the foreground the picture will be made or marred. Try the ruins of old Chingford Church, one of the most venerable of England's ecclesiastical edifices. By the aid of a monastic garb and a good model some most telling subjects can here be made. Take a camera to the top of old Rochester Castle and work up the glorious foreground into pictures. The Medway is always full of life, and the man of skill will not be at a loss for subjects.

Try the monastic habit in some of the cathedrals, and when engaged in studies such as these, eliminate the incongruities, such as the modern gas lamp. Above all, never underrate your own powers by copying other people's work, imagining the best point of view has already been selected by them. The chances are it has not.—*The Camera.*

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### THE WORLD'S PHOTOGRAPHY FOCUSSED.

At a late meeting of the Dresden Society of Photographers' Assistants, one of the

members read an excellent paper on "Arrangement." In a clear and concise way he discussed the following points: the avoidance of perpendicular supporting lines, particularly in an inclined bust portrait: turn of the head and shoulders, and the arrangement of the head in groups of a number of different persons. It was all practical.

THE German Photographic Society of Stuttgart at their late exhibition had quite an experience meeting. Many of the exhibitors received honorable mention. A Rotterdam photographer gained special praise for strong modelling, for harmony of middle tones in the flesh, and the use of appropriate backgrounds as apparent in a collection of cabinet pictures. Kindly advice was tendered him in the following respects: not to have the heads in his later pictures turned so much as to detract from the action of the figure.

Mr. Hildebrandt, of Bremen, came near having his picture passed by owing to the peculiar way he had them framed and arranged; they were set up on a table like soldiers, one behind another, and looked just like frames which their maker wished to exhibit, and in which he, wishing to show them off well, had inserted a photograph, something after the plan of Fr. Hundt & Co., of Hamburg, who placed in the case with his photographic cartoons the picture of the Emperor and his grandchild. Upon looking more closely at these frames, however, we perceived that they were all alike, and that back of the frames were people well and technically photographed. Mr. Hildebrandt was advised to choose, hereafter, a more suitable raiment for his pictures.

Among the pictures pronounced artistically superior is the one in the collection bearing the motto "Wohlgemuth" (Cheerful). It is the picture of a lady in white rising from a dark cloud ground with a white umbrella. Several of the pictures of men represented in this collection, say the committee, were very well done, especially the one with the long beard. Many of the pictures in the collection bearing the motto "Between the Picture and the Brim of the Cup hovers the Jury's Critical Hand," show very pretty work, notably the following:

"The Mother and her Child," "The Child Alone," "The Graceful Maiden," etc.

Many other artists exhibited fine pictures, cabinet portraits, landscapes, enlargements, interiors, groups, etc., all showing thorough work, and giving a prudish committee an opportunity to display their nonsense and to show their sense.

THE sudden death of Herr Paul Hecht, a member of the German Photographic Society of Berlin, and member of the firm of Alb. Grossman, of the same place, is announced with sorrow. The business will be carried on under the old firm name.

THE Academy for Photography and Reproductive Processes in Vienna, will open on the first of March, 1888, according to the decision of the Emperor of Austria. As we have been informed, instruction, both theoretical and practical, will be given on all subjects necessary for photographic and reproducing processes. There will be in the institution portrait and reproduction studios, etching, printing, and drawing-rooms, besides a chemical laboratory, etc.

The editor of the Nicetown, Pa., *Sun* is evidently a hopeful coward. He recently met Mr. John Carbutt with a group negative of children exposed in a parlor by the diffused magnesium light, and charmed with what he saw, editor like, begins to turn photography to his own wants (in his mind, of course), thus:

"As a burglar alarm this new photography will be a success. A loaded camera will be hung on the wall of your parlor, with an electric attachment, so arranged that as soon as Mr. Burglar opens the door the gun-cotton and the burglar will "go off" about the same time, the gentleman having kindly left you his photograph, which you can leave at the police station until the owner turns up."

ALVAN CLARK, the greatest manufacturer of telescopes the world has seen, and whose death occurred little more than a month ago, affords a splendid example of what a man can do with a pursuit taken up quite late in life. Here is his own account of the way in which he commenced lens-grinding:

"My son, Alvan G. Clark, was at Andover, studying to be an engineer. His young mind seemed to be absorbed in telescopes. I was a portrait painter then, and I began to study mechanics and astronomy, so as to instruct my boy. We experimented together, and succeeded in making a reflecting telescope. One of the Cambridge professors was much pleased with some instruments we made, and when we suggested to him that we would like to manufacture improved instruments, he gave us great encouragement, and we went ahead." It has been stated that, before he commenced work for himself, Alvan Clark had never seen a lens ground.

AN amateur near Boston was knocked down the other day for shooting his camera at a young lady as she flew toward him on a swing. Correct focus *that* blow was—and a good stop.

THE Dublin Exhibition is a great success.

THE Australia Exhibition (at Melbourne) turned out to be the best one ever held there. Art grows.

THE following are the French prizes offered: 2000 francs for photographic lenses for travellers. 500 francs for a new printing process to displace the processes in use. 1000 francs for an improved negative process. Particulars may be had further of the Secretary of the Societe Française de Photographie, No. 20, Rue Louis le Grand, Paris. Competition ends December, 1888.

THE foreign Societies are buzzing away and we shall soon have interesting details.

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### THE DEBT WE OWE JEX BARDWELL.

WE have no hesitancy in stating that we are one with President Cramer in his appeal to the craft to contribute to a purse of \$1000 for the comfort of Jex Bardwell during the coming winter. The money is needed *now*. No one knows better than we do what Mr. Bardwell has done. He began in 1868 in the "bromide war" to give his time and knowledge freely for the good of the craft, and but for his testimony a syndicate, formed

for the purpose, would have had Cutting's patent for the use of bromide renewed, and millions of dollars exacted from photographers. *Millions?* Just as sure as there are millions of dry-plates used, each one containing bromide. Years ago we proposed a testimonial for Mr. Bardwell, but he begged us to withhold.

But old age and misfortune change one's circumstances and feelings. So far as the bromide patent case is concerned, when he was called to the courts, Mr. Bardwell closed up his gallery in Detroit while he was gone East in the interest of the craft. Very few photographers would have done that. His testimony was a large help in defeating the monopolists against us. In regard to the silver saving case, a few facts are worthy of record. He received a letter from one of a firm in New York asking him to come and testify on a suit brought against one of the firm for \$25,000 libel. He told them it was unnecessary to come and subject them to expense, but that he would send them such documents as would help them all they needed. He kept his word, and afterward received a letter saying that they had been effective in breaking up the suit.

Some time after the firm alluded to referred some Connecticut folks to Mr. Bardwell in the same matter. Some time after Shaw commenced suit against some of the Chicago photographers, one of which was Mr. Mosher. They wrote to the New York firm to know what to do in the matter, and they again referred them to Mr. Bardwell. At the earnest request of the Chicago photographers he again closed his gallery and went to Chicago.

After giving his testimony and backing it up with evidence (documentary) the Commissioner told Shaw his case was not worth a cent. That broke the matter up, and so far as we remember, it was Shaw's last attempt to maintain his patent. The Chicago men paid Mr. Bardwell's fare both ways and his board while in their city. Did they do more? We have no doubt but this saved the dry-plate makers and those who use dry plates many a dollar. This is the plain statement of matters. If Mr. Bardwell was only as fortunate as some so as to be in other circumstances, he would not need any help,

but through misfortune of one kind and another he has no longer even a car to work in and his sight is giving way. He can no longer ask employment, and must depend on outside work. Help him now.

## ORTHOCHROMATIC PHOTOGRAPHY.

BY C. H. BOTHAMLEY, F.I.C., F.C.S.

(Continued from page 638.)

*Processes without a Screen.*—Various processes have recently been described for the preparation of orthochromatic plates which can be used with a yellow screen. They all depend upon the formation of silver derivatives of the dyes, these derivatives being particularly sensitive to yellow and orange rays.

The silver derivative of eosin, sometimes called *eosin silver*, and sometimes *silver eoside*, was described some years ago by Baeyer. The relation between it and the eosin is very much the same as the relation between potassium or sodium bromide and silver bromide—that is to say, the sodium or potassium which exists in combination in all the soluble eosins has been replaced by an equivalent quantity of silver. The corresponding derivatives of the other dyes of the same group have not been described in detail. The author has prepared them, and is at present engaged in investigating their properties.

The silver derivatives of the eosin group of dyes are precipitated when silver nitrate is added to aqueous solutions of the dyes. Eosin silver and phloxin silver are insoluble in water which contains silver nitrate or other salts, but dissolve somewhat readily in pure water. Erythrosin silver and rose Bengal silver, on the other hand, are practically insoluble in water. All the derivatives are readily soluble in ammonia, and they are generally applied in the form of an ammoniacal solution.

The formulæ which have been proposed, may be divided into three groups: 1. Those in which the plate is treated with a solution of silver fluoride, and then with an alkaline solution of the dye; 2. Those in which the plate is treated with an ammoniacal solution

of silver carbonate and the dye; and 3. Those in which the silver derivative is prepared by precipitation, then dissolved in ammonia, and this solution applied to the plate. When silver fluoride is employed, the sensitiveness of this compound to rays of low refrangibility assists the action of the dye.

*Obernetter's Formula.*—Steep the plates in distilled water for one minute, and allow to drain, then steep for one minute in a dilute solution of silver fluoride; again drain, and finally cover three times in different directions with

Erythrosin Solution (1 : 1000)	. . .	25 parts.
Azalin Solution (Conc.)	. . .	2 "
Ammonium Carbonate Sol. (1:6)	. . .	50 "

Exposed plates are developed with the soda-pyro developer, and when development is half accomplished potassium bromide is added as a restrainer.

*Vogel's Formula*—

French Rose Bengal (1 : 1000)	. . .	10 parts.
Eosin or Erythrosin (1 : 1000)	. . .	25 "
Silver Fluoride (1 : 1000)	. . .	3 "
Ammonia . . . . .	. . .	1 part.

First mix the two dye solutions, add the silver fluoride, and finally the ammonia. Then dilute with 50 to 100 parts of water according to the character of the result required, and the sensitiveness of the plates which are being so treated. The plates are bathed in the dilute solution, and allowed to dry in the dark. Exposed plates should be developed with alkaline pyrogallol. The prepared plates will not keep more than six days.

*J. B. Wellington's Formula.*—The plates are steeped for two minutes in the following solution :

Silver Nitrate . . . . .	20 grains (2 parts).
Ammonium Carbonate	90 grains (9 " ).
Distilled Water . . . . .	16 ounces (760 " ).
Erythrosin Solution	(2 : 100) 10 drachms (60 " ).

and are then rinsed with distilled water and dried in the dark. The sensitiveness of the plates is increased about three times, but they are very unstable, and will not keep for many days. In order to prevent fog during the development, the exposed plates

are steeped for not more than thirty seconds in a solution prepared by mixing

Potassium Bromide . . . . .	120 grains.
Ammonium Bromide . . . . .	½ ounce.
Water . . . . .	12 ounces.

They are then washed under the tap, and at once developed with alkaline pyro or ferrous oxalate. If the colors of the object to be photographed contain a large proportion of blue, a yellow screen must be employed if the exposure is made by daylight; but this is not necessary if the exposure is made by gas or lamplight.\* Gaslight or lamplight exposures always give the best results.

If desired, the silver erythrosin may be mixed with the melted emulsion, but this method requires great care, and plates prepared in this way should be used as soon as they are dry. The orthochromatic effect is very considerable, and the general sensitiveness of the emulsion is increased about ten times. The following proportions are recommended :

Emulsion . . . . .	10 ounces (4800 parts).
Silver Nitrate . . . . .	10 grains (10 " ).
Ammonium Carb. 45 " . . . . .	(45 " ).
Erythrosin Solution	(1 : 500) 5 drachms (300 " ).

Before development, the exposed plates are treated with bromide solution in the manner described above.

Much better results are obtained with collodion emulsion, and a yellow screen is unnecessary even by daylight; but the keeping qualities of the plates are no better than in the case of gelatine. The following method is recommended: 10 grains (10 parts) of silver nitrate are dissolved with the aid of heat in 2 drachms (120 parts) of water, and 45 grains (45 parts) of ammonium carbonate added gradually in small portions until solution is complete. 8 ounces (3840 parts) of methylated spirit are added gradually to the hot solution, and the liquid is then mixed with 5 drachms (300 parts) of a solution of erythrosin (1 : 500). The dried collodion emulsion plates are steeped in this liquid for two minutes, and then dried. Before development the plates are treated

\* It is difficult to see what advantage this method has over a simple bath of ammoniacal erythrosin.—C. H. B.

with the bromide solution as already described, and are developed by means of ferrous oxalate, 3 to 1, three grains of bromide being added to each ounce of developer. The exposure required by daylight is about four times as long as that for an ordinary gelatino-bromide plate, whilst by gaslight the exposure is about the same in both cases. The erythrosin silver is found to exert a peculiar toughening action on the collodion film.

*Mallman and Scolik's Formula.\**—All the manipulations must be conducted in a deep ruby light. Fifty parts of erythrosin solution (1 : 1000) are heated on a water-bath, and gradually mixed with a ten per cent. solution of silver nitrate until no more precipitate forms, and the liquid is colorless. The precipitate is then filtered off, washed with cold distilled water until all excess of silver nitrate is removed, and dissolve in 1 to 4 parts of ammonia diluted with 20 parts of water, and the solution is afterwards mixed with 200 to 300 parts of water. The plates, which must be free from any trace of free alkaline bromide, are steeped in this liquid for one minute, and dried.

*Development of Orthochromatic Plates.*—The special precautions required, or methods to be adopted in each case, have been given with the formula. It should be borne in mind that orthochromatic plates are more liable to fog during development than ordinary plates, and therefore care must be taken to use a well-restrained developer in all cases. Pyrogallol with ammonia, potash, or soda, may be used with satisfactory results. If ferrous oxalate is employed it must be well restrained with bromide, but it is better to treat the plate at first with some developer which has already been used.

Since orthochromatic plates are highly sensitive to yellow and orange, their preparation, and all subsequent operations until they are fixed, must be conducted in a deep ruby light, care being taken to protect the plate as much as possible. Plates dyed with erythrosin may be developed in the light given by a candle screened with one thickness of good ruby glass, or, if proper

care is taken, one thickness of Edwards's non-actinic paper (ruby), or any similar paper. It is possible to develop the plates in orange-yellow light, if very great care is taken to protect them during the first stages of development. Plates sensitive to orange-red or red are best developed in a subdued light obtained by filtering candle light through three or four thicknesses of pale brown tissue paper (*seide papier*). This is found to give the minimum amount of chemically-active rays consistent with the necessary amount of illumination. Plates sensitive to red must, of course, be kept in absolute darkness as far as possible, and all operations connected with their development, etc., conducted in a very weak light.

After the plates have been in the developer for some time, they become much less sensitive to yellow, orange, etc.

The presence of the dye, like the presence of free alkaline bromide in the emulsion, renders it much easier to obtain dense negatives. After fixing, the film generally retains a certain quantity of the dye, and is therefore colored; but the color does not materially interfere with the printing qualities of the negative. It can, however, in most cases, be almost completely removed by treating the plate with alcohol to which a few drops of ammonia have been added.

Hitherto the author has dealt mainly with the experiments and results of other observers. These results were sufficient to indicate the great importance and value of orthochromatic methods, and to constitute a real advance in photography. It was evident, however, that further experiments were highly desirable. Photographers who had actually put into practice the orthochromatic methods which had been proposed, gave very conflicting reports as to their value. Then, too, the question of the variations in the composition of the dyes, and the comparative or total inefficiency of certain samples, is obviously of the greatest importance. Moreover, it seemed desirable to repeat Eder's experiments with the spectrum; not because any doubt attached to the work of so careful and able an investigator, but because results with the spectrum necessarily constitute the basis of the practical application of these processes, and per-

\* Jahrbuch f. Photographie, 1887.



factly independent confirmation of new facts always has a certain value. The interest of the main question and the side issues involved in it are so great that the writer of these articles was led to undertake a series of investigations, which are still in progress, but the first results of which have recently been communicated to the Nottingham section of the Society of Chemical Industry. The experiments which have already been made were confined almost exclusively to dyes of the eosin group and cyanin, which have been shown by Eder, Schumann, and Mallman and Scolik to be the best sensitizers of all the dyes which have hitherto been employed for this purpose.

The eosin group of dyes derives its name from eosin, the first member of the group which was actually employed successfully as a dye. The dyes have a somewhat complex constitution, and belong to a class of compounds which are known as *phthaleins*, because they are formed either directly or indirectly from phthalic acid. It is worthy of note that although they belong to the so-called *coal tar dyes*, they are not aniline dyes, that is, they are not prepared from, and have no direct relation to aniline.

The parent substance of the group is *fluorescein*, which is readily obtained by heating phthalic acid, or better phthalic anhydride (*i. e.*, phthalic acid which has been deprived of the elements of water) with resorcinol, a compound very similar to carbolic acid or phenol, and, like the latter, closely related to benzene. Fluorescein is a compound of twenty atoms of carbon, twelve atoms of hydrogen, and five atoms of oxygen; and is represented by the chemical formula  $C_{20}H_{12}O_5$ . It possesses what the chemist calls a phenolic function, or, in other words, behaves to a certain extent like an acid. Two of the atoms of hydrogen which it contains can be replaced by metals such as sodium, silver, or potassium, and the compounds which are thus formed have many of the characteristics of the class of compounds known as salts. Fluorescein itself will not dissolve in water, but the derivatives formed when the hydrogen is replaced by the metals mentioned, are soluble.

The principal eosin dyes are formed from fluorescein by the replacement of two, four,

or six atoms of hydrogen by an equivalent number of atoms of chlorine, bromine, or iodine. The compounds thus produced are much more valuable as dyes, and have a far higher tinctorial power than the fluorescein itself. Like fluorescein, they are insoluble in water, and like it they contain two atoms of hydrogen, which can be replaced by two atoms of sodium, potassium, etc., with formation of compounds soluble in water. The great majority of the commercial eosin dyes contain either sodium or potassium in combination, and are soluble in water. These metals, in fact, are just as essential constituents of the dyes as the carbon, hydrogen, etc.

Eosin is fluorescein in which four atoms of hydrogen have been replaced by four atoms of the element bromine. Erythrosin is fluorescein in which four atoms of hydrogen have been replaced by four atoms of the element iodine. Phloxin is formed by the replacement of four atoms of hydrogen by bromine and two of chlorine. Rose Bengal is formed by the replacement of four atoms of hydrogen by iodine, and two by chlorine. The relation between eosin and phloxin is precisely the same as that between erythrosin and rose Bengal. The chemical formulæ of these compounds are as follows:

Fluorescein . . .	$C_{20}H_{12}O_5K_2$ .
Eosin . . .	$C_{20}H_6Br_4O_5K_2$ .
Phloxin . . .	$C_{20}H_4Cl_2Br_4O_5K_2$ .
Erythrosin . . .	$C_{20}H_6I_4O_5K_2$ .
Rose Bengal . . .	$C_{20}H_4Cl_2I_4O_5K_2$ .

C is the symbol for the element carbon, H for the element hydrogen, O for oxygen, K for the metal potassium, Br for bromine, Cl for chlorine, and I for iodine. The figures denote the number of atoms of each element which have entered into combination. These dyes have very striking optical properties. Their colors are beautiful and brilliant, and their tinctorial power is very great. The parent substance fluorescein has very little tinctorial power, but exhibits in a very high degree the beautiful phenomenon called fluorescence; hence, in fact, its name. When its solution is looked through, it has a pale yellow color; but when the light is reflected from the surface of the liquid, or from the side of a glass vessel containing it, it appears to have a brilliant yellow

lowish-green color. Eosin has also the same property; when the light passes through its solution, it has a lovely delicate pink color (hence the name, from *eos*, the dawn); but when the light is reflected from it, it is of a brilliant green. Phloxin is also fluorescent, but in a less degree. Erythrosin and rose Bengal do not show the phenomenon. The tinctorial power of the dyes increases, and the shade of color becomes bluer as we pass from the top of the series to the bottom. Erythrosin and rose Bengal have the greatest tinctorial power, and the latter is bluest in color. The property which these dyes have of forming definite compounds with silver which are highly sensitive to yellow rays has already been referred to.

Cyanin likewise has a complicated chemical constitution, but belongs to a different series of compounds known as the quinoline series. Cyanin, in fact, is frequently termed "quinoline blue." It is generally represented by the formula  $C_{28}H_{35}N_2I$ , and differs from the eosin dyes in containing two atoms of the element nitrogen (N), and no oxygen. It is much less stable than eosin and its allies, and decomposes very rapidly.

The author's experiments may be divided into three groups, namely (1), comparative examinations of a number of commercial samples of eosin dyes; (2), an investigation of the effects of the spectrum on plates stained with these dyes; (3), the application of plates treated with erythrosin to the photographing of flowers, paintings, pottery, and landscapes.

It has previously been explained that the different samples of dyes prepared by the same maker are distinguished by letters, whilst the same dye may be denoted by different names or letters by different makers. When applied to fabrics, the different samples produce somewhat different, though not dissimilar, shades of color. The dyes actually examined were eosin A (Badische Anilin und Soda Fabrik), eosin J J (Society of Chemical Industry), eosin S G F (L. Casella and Co.), eosin V E (Poirrier and Co.), phloxin (P. Monnet), phloxin (Meister, Lucius and Bruning), erythrosin B (Casella and Co.), erythrosin I (Badische Aniline und Soda Fabrik), erythrosin (Poir-

rier and Co.), erythrosin B E (Poirrier and Co.), erythrosin R E (Poirrier and Co.), erythrosin extra (Meister, Lucius and Bruning), rose Bengal B (Meister, Lucius and Bruning), and rose Bengal (P. Monnet). When solutions of the dyes of this group are examined by means of the spectroscope they show an absorption spectrum which is characterized by a strong dark band in the yellow or yellowish-green, according to the particular dye. The absorption band of eosin is darkest in the yellowish-green, that of rose Bengal in the yellow, whilst the other two are intermediate in position. The absorption band, in fact, is nearer to the red end of the spectrum, the lower the position of the dye in the series given above.

The identity of otherwise of the different samples was determined in the first place by examining the absorption spectrum, and measuring the position and breadth of the absorption band. It has already been explained that this mode of examination does not give precise information respecting the actual sensitizing effect of the dye, but it does serve as a means of distinguishing different dyes, and enables us to tell with considerable certainty, especially if used in conjunction with other tests, whether a given sample is a mixture, or consists only of a single substance. Details of the method of examination are given in the paper referred to, but they have no special photographic interest.

It was found that the four samples of eosin gave practically identical absorption spectra, and they were afterward found to exert similar sensitizing effects. The results with the two samples of phloxin were not very definite; they are not identical, and it is not at all improbable that both are mixtures and not single compounds. Erythrosin B is decidedly different from the other erythrosins. It is distinctly fluorescent, whilst the others are not; its absorption band does not extend so far into the yellow; and it gives a precipitate with silver nitrate which is almost completely soluble in pure water, whereas the precipitate given by erythrosin is insoluble. The properties of this so-called erythrosin, in fact, indicate that it is a mixture of eosin

with the erythrosin or rose Bengal. Similarly, erythrosin B E gives an absorption spectrum which shows that it is really rose Bengal, and this conclusion was subsequently confirmed by the character of the sensitizing action of the dye. Erythrosin extra, erythrosin 1, and erythrosin (Poirier and Co.) and erythrosin R E, give identical absorption spectra, and the first three were found to have practically the same sensitizing effect. The two samples of rose Bengal examined are likewise identical, both in their absorption spectra and their sensitizing action.

It was found, and the observation is of considerable theoretical interest, that the

addition of ammonia has no effect on the absorption spectra of the dyes, and hence in all probability has no chemical action on the dyes themselves.

Most, if not all, the eosin dyes contain a certain proportion of water in chemical combination, but the quantity of water present in different samples is somewhat variable. One sample of erythrosin, for example, contained 8.8 per cent. of water, whilst another contained 12.2 per cent. It is doubtful, however, whether the variations are sufficiently great to produce any material differences in the relative sensitizing effects of the different samples.

(To be continued.)

## Editor's Table.

WILSON'S *Quarter Century on Photography*.—In this work we have an admirable body of photographic information. From notes published at different times by some three hundred leading authorities, amateur and professional, a running series of foot notes is composed. Above these, and serving as the basis for their imparted character of commentary, comes the text, rather less in extent than the notes. The whole forms an exceedingly attractive olla-podrida of notes and observations. Illustrations of all sorts of devices and assistances in photography are given in liberal profusion. The text is a consecutive and valuable treatise by itself. The notes are made up of selections from the *Philadelphia Photographer*. The author and editor of the work speaks of it as an anniversary publication for himself, he, twenty-five years ago, having entered a photographic establishment as employé.

This volume commemorates his devotion of a quarter of a century to his art. From what has been said of the scheme of the book, it is evident that a review is impossible. To get the full scope, the book itself should be consulted, and we recommend it to all photographers on its merits.—*Scientific American*.

"I find this to be the best selling book at the price, of any book I ever had."—SAM. C. PARTIDGE, San Francisco, Cal.

"I value it more highly than any work on photography I have."—O. S. MORRIS, Richmond, Va.

"I cannot speak highly enough of it."—L. E. WILSON, Peterboro, N. H.

"I recommend it to my patrons with confidence and pleasure."—G. A. DOUGLASS, Chicago, Ill.

"With it and *Photographics*, if I do not overcome the enemy, I am an ignoramus."—HENRY BENTLEY, Pres. Philad. Local Telegraph Co.

"You deserve great credit for so valuable a book."—FRED. W. STILES, Westerly, R. I.

"It is the finest work that has ever been published. It covers the whole ground."—L. S. White, Kalamazoo, Mich.

"The most valuable publication of the day."—E. M. ESTABROOKE, N. Y.

"There does not exist a more useful work for photographers to consult. A splendid edition."—OTTAVIO BORATTI, Milan, Italy.

"The letter" of my photographic bible (*Quarter Century*) "killeth"—i. e., it is death to inaction and has a tendency to exterminate poor work; but "the spirit giveth life." It is a wonderful tonic for the "given out" photographer, and will help him amazingly to "brace up." Its "positive" teaching is *positively* good, and its *negative* instruction is *intensely* interesting. While we cannot deny that there is much that is "light" in the reading, there is nothing trifling.

The good Dr. evidently felt that he must say considerable that was "dry," but the manner in which he has said it, is not so very *dry* after all. Its effect upon the developer (photographer) is to make a *bright clean* p(1)ate. By a careful and persistent use of its "transmitted light" one's work *must* become *negatively* good.

We say by all means get it, and keep it handy. You'll never be sorry.—J. C. SUNDERLIN, Flemington, N. J.

WILSON, HOOD & Co., 910 Arch St., Philada., give free, in their "fat envelope" this month, full instructions for working Anthony's Permanent Bromide Paper; instructions and formula for Carbutt's Dry Plates; a circular pertaining to Cooper's Universal Enlarging Lantern, and their own fine list of apparatus novelties.

TOPICS OF THE TIME.—Mr. G. M. CARLISLE, treasurer of the P. A. of A. now resides at Kansas City, Mo.; Mr. O. PIERRE HAVENS is building a fine studio at Jacksonville, Fla.; Mr. J. P. CHENEY, Philadelphia, recommends the "Pearl" lead as finest for retouching. 15 cents a piece; Mr. ODIN FRITZ has purchased and refitted the famed Bushby Gallery at 521 Washington St., Boston. Mr. Bushby devotes his whole time to work at the easel now; Messrs. WILSON, HOOD & Co. are about to issue a combined catalogue of all the makers of lenses known in the trade; Mr. GEO. M. BRETZ, Pottsville, Pa., is studying the sculptor's art.

A NEW photographic magazine has been born in St. Petersburg, Russia. It is called *Photographicheskii Vestnik*, is a monthly edited by Mr. PAUL OLCHIN, and is published by Messrs. BRUNO, SENGER & Co. We wish our new contemporary great success.

SEVERAL interesting photographs of pigeons on the wing have been sent us by Mr. R. W. KEAR, Pottsville, Pa. The birds were taken on their "first flight"—i. e., as they started from rest. The guillotine shutter used was not quick enough for them. Their wings have "moved," but they are a great success nevertheless.

DEATH has caused two sad, opaque spots in our fraternity recently. One in the demise of GEO. W. SITTLER, of Springfield, Mo., a bright, amiable man and earnest photographer, who met with a sorrowful accident while enjoying recreation with his family, on Sept. 22d.

The other, EDWARD F. HARTLEY, of Chicago. Mr. T. F. Pattison, of Smith & Pattison, writes as follows: "He had a heart as large as a street car and was loved by all who personally knew him. He pushed photography, like any good business man does any other business, for the money there was in it. He was a great success." He died Oct. 9th and was followed to the grave by a large circle of friends. The services were

conducted by the Rev. Dr. E. P. Goodwin, pastor of the First Congregational Church. Dr. Goodwin preached a brief but eloquent funeral sermon, showing that light came from darkness, just as the pictures of our loved ones, after being limned by the solar ray in the camera, were developed into a living likeness in the dark-room of the photographic artist.

Mr. H. McMICHAEL, Buffalo, has sent us a fine cabinet of a gray-bearded, frowsy-haired model—"each particular hair (made) to stand on end," which he calls "The Storm." On the upper corner of the plate "lightning flashes" have been introduced. To these the model is directing himself with fearful and effective energy. It is a striking and excellent picture.

Dr. J. H. HIGGINS' interesting paper on "Finders" will prove a very welcome one to many who are going *all wrong* on this subject. We have carefully examined the Higgins "Finder"—we own one, and we are free to say there is nothing so good of its kind. So far as we have had opportunity to use it, it has proven a great convenience. Moreover, it is neat, well made, and not costly.

THE Blair Camera Co., Boston, New York, Philadelphia, and Chicago, are pushing the "Hub" brand of dry plates with great success. The "Hub" plates are guaranteed to possess all desirable qualities.

"THE Sensitized Paper Preservative" of Messrs. BROWN & GOLDSMITH, Springfield, Mass., has met with phenomenal success. It seems to have been an article that every photo. printer was in want of and which every wise one now uses. The manufacturers have sent us photographs of several letters speaking of the advantages of their preservative, from which we make a few extracts for the public good: "We have never had a package returned or complaint made."—C. H. CODMAN & Co., Boston. "It has been with all who have bought it a *success*."—GEO. MURPHY, N. Y. "It is a saving of time, paper, and money."—J. L. LOVELL, Amherst, Mass. "We had twenty-four sheets of paper silvered when a three days' storm stopped our printing. The paper was just as good when taken from the "preservative" as if it had been silvered only an hour."—J. F. Suddard, Fall River, Mass. "We keep our regular sensitized paper in your tin apparatus and shall surely work up a large trade for you."—G. A. DOUGLASS & Co., Chicago, Ill.

THE article on Physical Training, which Dr. Sargent contributes to *Scribner's* for November, is very fully illustrated from instantaneous photographs of experts in the various branches of athletics, including the portraits of sprinters, lacrosse players, long distance runners, wrestlers, football, and baseball players who have won enviable records at Harvard and Yale in recent years.

A HAPPY incident occurred at the studio of Mr. F. W. GUERIN, St. Louis, Mo., on his return from the Chicago Convention. His contented employees banded together to give him a good "welcome home," and used the occasion to present him with a pair of solid silver statuettes and tea set of ornate design. A collation followed, at which the *diamond badge* won at Chicago was shown, and where the "feast of reason and flow of soul" continued for several happy hours. The *poet laureate* has sent us a copy of his ode, which is highly photographically entertaining. We congratulate all concerned upon their joint good work, and upon the harmony existing at the Guerin studio.

MESSRS. HOWSON & SON., the distinguished Patent Attorneys of Philadelphia have opened a branch office in the Potter Building, 38 Park Row, N. Y., under the personal charge of Mr. Hubert Howson. Our best wishes.

*Photographic Mosaics* 1888 is well through press and a list of contributors will be found elsewhere. The advertising advantages of *Mosaics* are above anything else. It will have at least 12,000 readers this year, and the cost of advertisements is only \$10.00 a page. There is time for a week only to receive copy.

MR. G. GENNERT, 54 East 10th St., New York, informs us that his sales for Dresden Extra Brilliant Paper were never more "brilliant." The "Eagle" paper and the "Eagle" dry plates are both popular all over the country.

PICTURES BY THE PRIZE-TAKERS.—We have arranged with the P. A. of A. prize-takers to supply us with our own selection from their exhibits, from which we have made up a series of *Mosaics* for our future embellishments. This will enable our readers who could not attend, to share some of the practical advantages of the exhibition. The first of the series will include Mr. LANDY'S "Man Know Thy Destiny," Mr. G. CRAMER'S young "Artist," MESSRS. STRAUSS BROS "Harpist," and Mr. Cramer's "Tambourine Girl," in our opinion four of the gems of

the exhibition, reduced from 17 x 21 and 20 x 24 negatives. We expect to accompany each selection with practical notes from the prize-takers and with our own comments, besides other art papers. All these will make our future numbers exceedingly attractive and useful. Other sets will follow, including some of the best cabinet work shown, and some groups.

"TAKEN IN A JIFFY."—This is how the "public press" catches at anything now in our art in these growing days.

"Some men in this world make a genuine hobby of their business and are thereby doubly successful. Such a man is L. Farini, the photographic artist in Warner Building. He is as infatuated with photography now that he makes it an avocation as he was when experimenting as an amateur for several years. Nor has he abandoned his experiments, for his gallery is supplied with all the latest inventions and he plunges low into the depths of the mysterious art. If there is anything new under the sun in the way of sun pictures, Farini can make them. He is not satisfied to secure sun negatives, but is producing admirable work by artificial light, in the dead of night, and the light he uses is as startling as are some of the pictures, simply a flash of gun cotton."

Of course this was a Connecticut paper—and a *Bridgeport* one.

SCOVILL MANUFACTURING Co. have greatly improved the Concealed Camera and present sample pictures made by it.

ITEMS OF NEWS.—MR. W. B. GLINES, Hutchinson, Kan., received the first prize at the late fair in his city. MR. G. A. WALRATH, Potsdam, N. Y., has been honored in a like manner. MR. FRANK MCKNIGHT, Centralia, Ill., was burned out on Sept. 13th. Loss \$2500 and no insurance. Davenport, Iowa, has lost its "New York Gallery," MESSRS. WM. and JOHN KELLEY and ED. FRITZ the proprietors having "left." No one has returned to pay their board and rent deficit.

MR. GEORGE MURPHY, No. 2 Bond St., N. Y., sends out a card of "specialties" which should be obtained by all buyers. The agency for the Seed Dry plates is at Mr. Murphy's store.

"GLIMPSES of the American Canoe Association" is the title of a tasteful little souvenir issued by Mr. S. R. STODDARD, Glens Falls, N. Y. It contains photogravures from Mr. Stoddard's unrivalled gems, and a list of the mem-

bers of the Association. It is very tasteful and elegant.

PROF. C. H. BOTHAMLEY, of Manchester, Eng., author of the excellent papers on orthochromatic photography which are appearing in our pages, has favored us with the entire series of his lectures in pamphlet form. Prof. Bothamley is the popular lecturer on chemistry and photography in the Yorkshire College, Leeds, and has gone further into the interesting branch of experiment opened up by color sensitive photography than any one else. He has placed us all under lasting obligations to him for his generosity in giving us so freely and fully of his knowledge.

PICTURES RECEIVED.—From Mr. HARRY McNEILL, Fredonia, N. Y. Some excellent cabinet pictures, skilfully posed, lighted, and printed—a trio of excellences not always combined in a picture. From Mr. P. E. CARRIERE, New Orleans, La., some fine levee scenes, negro groups, instantaneous “snaps” of steamers and boats. They are admirable in every way.

MR. WM. KURTZ, Madison Square, N. Y., has recently had some wonderful successes in reproducing oil paintings by the use of Azaline plates, and his modification of the Meissenbach process. The results he has sent us and those which appeared recently in the *Portfolio* are the nearest in effect to fine mezzotint steel engravings of anything we have seen. Mr. Kurtz has made us a plate for a future “Our Picture.” When it appears we shall have more to say of his methods.

THE finest example of technical photography we have seen for a long time, comes to us from the studio of Mr. F. GUTENKUNST, Philadelphia. It is a bust picture of the Hon. Andrew G. Curtin, former Governor of Pennsylvania. The subject is not handsome, but his picture is. A clean shaved face, full of modelling is rendered by the deft development of the plate in superb gradation. There is a rise and fall of half tone pervading which seems almost like natural flesh, in truth. It is realistic. Two other fine specimens accompany this—one of Edwin Booth—the other of Lawrence Barrett. These pictures are among the highest reaches of art.

MR. J. C. SUNDERLIN, Flemington, N. J., is located in one of the brightest little towns of his state, and practices his art with enjoyment as well as profit. Some recent examples of his work now before us are full of lovely qualities,

and show forth the pleasant individualities and fine skill of the artist who created them.

THE new portrait lenses by Voigtländer, viz., the Portrait-euryscopes are duly appreciated by the most discriminating artists, who declare that they greatly exceed the most sanguine expectations. To use them is a veritable pleasure; such roundness, delicacy, brilliance, and accuracy are rarely seen in portraits. The wonderful power of these new instruments is a marvel of interest.

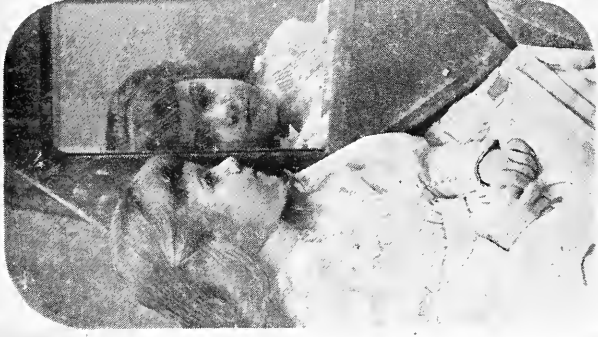
FEW users of dry plates realize how much the excellence of their results is due to the manufacture of gelatine. To no firm the trade so much indebted in this direction as to Messrs. F. DRESHER & Co., Oberndorf-Schweinitz, Germany. They exercise the utmost care in every way, and as a result supply the larger portion of gelatine used by dry plate makers. Consumers should order their winter supply now. We need not give the reason. They know.

A FINE WORK OF ART.—One of the most excellent and attractive photographic combinations we have yet seen has just been issued as a souvenir of the revival in this city, by Mr. Augustin Daly's Company of Shakespeare's “Taming of the Shrew.” In our issue of August 20th, we presented one of the scenes from this play, the print having been made without a ray of sunlight. This souvenir contains several other scenes, made in the same way, and several portraits in addition, by Mr. Sarony. The whole is bound in a white vellum cover, and is supplied in a tasteful box at the low price of \$2.00. All art lovers and art students will surely have it, and to bring it within the reach of our little band of art aspirants, we have consented to conduct the sale. The following is the list of illustrations.

1. Frontispiece in blue, with the title and a portrait of Miss Ada Rehan, “the Shrew.”
2. A cabinet portrait of Mr. Daly.
3. Miss Rehan as Katherine—the Shrew.
4. Mr. John Drew as Petrucio.
5. Sly, the tinker, metamorphosed into a lord.
6. Katherine's wedding day.
7. The real Vincentio and the mock Vincentio.
8. The Shrew tamed.
9. Lucentio's banquet.
10. The final tableaux.

The prints are all photogravure in rich tints, and the whole affair is creditable and superb.





NEW YORK.

TRIPLEX PORTRAIT.

G. G. ROCKWOOD.



THE

# Philadelphia Photographer.

EDITED BY EDWARD L. WILSON.

Vol. XXIV.

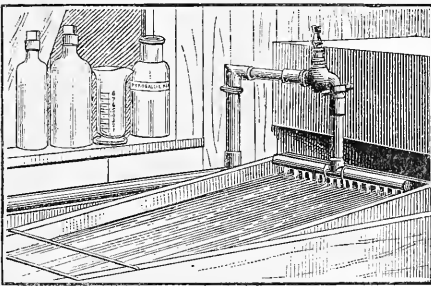
NOVEMBER 19, 1887.

No. 310.

## A NEW ZEALAND WASHING TANK.

THE following useful hint on washing negatives, comes from Mr. J. R. Hanna, of New Zealand, a gentleman who has been one of our subscribers for many a long year. We are always glad to hear from our subscribers on such practical matters for the object of our magazine is to be practically *useful*. Our interest and those of the worker are mutual. Send us your hints. Mr. Hanna writes:

Herewith please find enclosed post-office order for \$5.72 for one copy of *Quarter Century* and one copy of *American Annual of Photography*, in cloth, including postage.



Am very anxious to see the former book; if it is better than *Photographics* it must be a gem, that publication being the best work for us out-of-the-way photographers I've seen.

In a recent number of the *Times* a contributor makes known, by means of a sketch, a very simple, and to my mind, most suc-

cessful way of washing negatives. As the information contained in the notes accompanying the same was not very explicit, I venture to supplement them by forwarding you a photo of my washing tray, which is somewhat similar, and much more complete, besides being a most efficient plate washer; plates washed in this way require only about fifteen minutes to free them from hypo—at least this has been my experience after a seven years' trial of this mode of washing—indeed, frequent tests during that period did not reveal a trace of that deadly enemy to our beautiful art.

Yours truly,  
J. R. HANNA.

## ORTHOCHROMATIC PHOTOGRAPHY.

BY C. H. BOTHAMLEY, F.I.C., F.C.S.

(Continued from page 669.)

It may be pointed out here that certain samples of eosins, etc., are not soluble in water, but dissolve only in alcohol. These contain certain organic radicals which are known as *ethyl* ( $C_2H_5$ ), *methyl* ( $CH_3$ ), etc., in place of the potassium or sodium which is present in the samples that are soluble in water. These varieties have no advantages as sensitizers over the soluble varieties, and the fact that they cannot be used in aqueous solutions, but must be dissolved in alcohol, makes them practically useless as sensitizers.

The results of this comparative examination show that whilst the names of certain of the dyes are misleading, there is very

little difficulty in obtaining samples of good quality and uniform character without even the necessity of always purchasing from the same maker. It is, in fact, to the interest of the color manufacturer to make his products as uniform in character as possible, for any variations in composition would lead to variations in the shades of the dyes when applied to fabrics, and this would speedily give rise to energetic complaints and a loss of custom.

*Spectrum Experiments.*—The spectroscope employed in these experiments was a single prism instrument of the ordinary construction. In place of a solid glass prism, a hollow prism filled with colorless carbon bisulphide, was used, in order to obtain greater dispersion. It is, of course absolutely essential that the carbon bisulphide be free from the least trace of yellowness, otherwise it would cut off a large proportion of the blue and violet rays, and thus give very inaccurate results. The ordinary object glass of the observing telescope was removed, and replaced by a lens of about twenty-one inches focus; the eyepiece was taken away, and the open end of the telescope was fixed in the lens-hole in the front of an ordinary studio camera with long bellows. The back of the camera was fitted with a horizontal swing, which is necessary in order to get the whole length of the spectrum in focus at the same time.

The source of illumination used in experiments of this kind exercises considerable influence on the result. In this "climate of samples," as it has been termed, sunlight is so rare and uncertain that it is impossible to obtain constant exposures throughout a long series of experiments. Moreover, the character of sunlight—that is, the relative proportions of blue, yellow, and red rays which it contains—is extremely variable,\* the variations depending on causes which at present are not very clearly understood. The source of light selected was burning magnesium ribbon, which is now readily obtained at a comparatively very low cost. If the slit of the spectroscope is made narrow, a somewhat considerable length (say

3 feet) of ribbon can be burnt for each exposure, and if a long length is burnt at a uniform rate the effect of any inequalities in the ribbon is eliminated, and the exposures may be regarded as identical. There is another great advantage in using magnesium. It has previously been pointed out (pp. 666 and 667), that a prismatic spectrum is defective, in that the various rays are not separated in proportion to their wavelengths, the red, orange, and yellow rays being very much crowded together, whilst the blue and violet are spread out to a much greater extent than they ought to be. If we suppose the length of the spectrum to be divided into 1000 equal divisions, in a prismatic spectrum the distance from the line A to the yellow line D will be represented by 220 divisions, whilst the distance from D to the line H at the violet end will be 780 divisions. In a normal or diffraction spectrum, in which the distances between the rays are proportional to their wave lengths, the distance from A to D will be 468 divisions, and from D to H 532 divisions. It is obvious, therefore, that with a prismatic spectrum the effect of the red, orange, and yellow will be magnified in consequence of the crowding up of the rays, whilst that of the blue and violet will be reduced for the opposite reason. A prismatic is, however, more easily obtained, and more easily used. Now it is well known that the light from burning magnesium is exceptionally rich in blue, violet, and invisible rays of high refrangibility.\* It is, in fact, proportionally very much richer in these rays than even sunlight. The brightness or optical effect of sunlight at a certain zenith distance is 524.7 times as great as that of a certain quantity of burning magnesium, whilst its chemical effect is only 36.6 times as great. In other words, the proportion of rays of high refrangibility (blue, violet, and ultra-violet) to those of low refrangibility (yellow, orange, and red) is very much greater in the light from burning magnesium than in sunlight. It follows that this high proportion of rays of high refrangibility will tend to neutralize the

\* Vogel: Berichte der Deutschen Chem. Gesellschaft, 1874, p. 88.

\* Bunsen and Roscoe: Philosophical Transactions, 1859, p. 920.

defects of the prismatic spectrum, and results obtained with a prismatic spectrum of the light from burning magnesium will resemble more or less closely the results obtained with a diffraction spectrum of sunlight. The spectrum of burning magnesium shows the sodium line *D*, a line *b* between *E* and *F* due to the vapor of magnesium, a group of lines near *F* due to the oxide of magnesium, which is formed by the combustion, and a line in the bluish violet. These lines and bands serve conveniently as reference lines in place of the dark lines of the solar spectrum (fig. 4). The magnesium ribbon was paid out a slow and uniform rate by means of clockwork, and the apparatus was so arranged that the magnesium lamp and the spectroscope itself were outside the dark room, whilst the telescope and camera were inside. The same length of magnesium wire was burnt for each exposure, the actual length required being ascertained by preliminary experiments. Some undyed plates were exposed under the same conditions.

plates were prepared with aqueous solutions of the dyes, and others with ammoniacal solutions. In the first case the plates were soaked for two or three minutes in water, and then for two minutes in the following bath:

When ammonia was employed, the plates were soaked for two or three minutes in

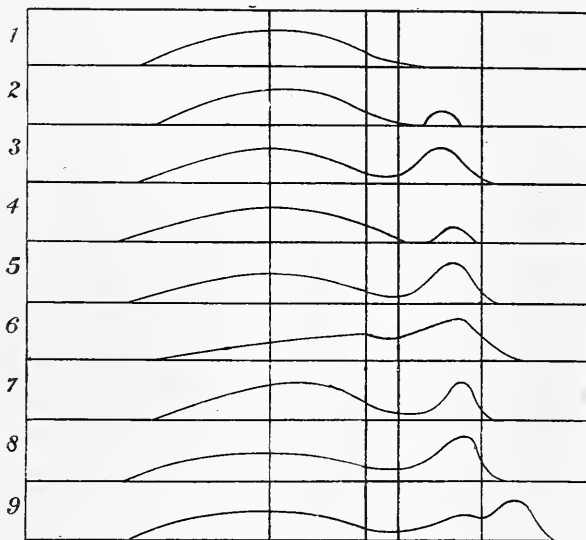
Liquor Ammonia 0.880 . . . . .	1 part.
Water . . . . .	99 parts.

and then for two minutes in

Dye Solution (1:1000) . . . . .	1 part.
Ammonia (1:10) . . . . .	1 "
Water . . . . .	8 parts.

The plates were drained with their lower edges on blotting-paper, and dried in the dark. It will be observed that both the aqueous and ammoniacal solutions contained the same proportion of dye, namely 1 in 10,000. The exposed plates were developed with alkaline pyro, which contained in each fluid ounce

Pyrogallol . . . . .	1 grain.
Ammonium Bromide . . . . .	3 grains.
Liquor Ammonia 0.880 . . . . .	6 "



Photographs of the prismatic spectrum of burning magnesium on (1) ordinary plate, and plates stained with (2) aqueous eosin, (3) ammoniacal eosin, (4) aqueous phloxin, (5) aqueous erythrosin, (6) ammoniacal erythrosin, (7) aqueous rose Bengal, (8) ammoniacal rose Bengal, (9) ammoniacal cyanin.

The dyes were applied to the gelatino-bromide by the bath process exclusively, the plates used being Paget XXX. Some of the

These proportions were found to be best suited for this series of experiments, and are not given as a formula for general work.

Some experiments were made with *night blue*, *ethyl purple*, *crystal violet*, and *violet 5BO*, but although these dyes exert a strong absorptive action on the orange, yellow, and green when in aqueous solution, they exert very little sensitising action on a gelatino-bromide plate. The results of these experiments agree with those previously obtained by Eder with the same dyes.

The eosin dyes used were selected from those which had been compared by examining their absorption spectra, etc. They were eosin A; eosin S G F; eosin V E; erythrosin (Poirrier); erythrosin I; erythrosin extra; erythrosin B E; phloxin (P. Monnet), phloxin (Meister, Lucius, and Bruning); rose Bengal (P. Monnet); rose Bengal B.

Cyanin was also examined; the plates being prepared according to Schumann's formula.

The results obtained are represented by curves, as shown in the figure, p. 675.

The reference lines being the lines or bands in the spectrum of burning magnesium. The curves are constructed from observations of the rate of development of the different parts of the plate, and from comparisons of the densities of different parts of the negatives after fixing. Each curve is the mean result of several experiments. It is useless to make elaborate measurements of the densities of the negatives, for the relative densities of the different parts are not constant quantities, but vary with the character of the developer, the length of time the plate is allowed to remain in the developer, and the time of exposure. The results will also vary somewhat, though not materially, with different batches of plates prepared by different formulæ.

The author's results agree in their general character with those previously obtained by Eder. The action of the spectrum on the dyed plates is represented by curves which show two maxima, the first in the blue and violet, which is due to the ordinary sensitiveness of the gelatino-bromide; and the second in the yellow, orange, and green, due to the presence of the dye. The sensitiveness to the ultra-violet is in most cases reduced by the presence of the dye.

When cyanin is used, the maximum sen-

sitiveness is in the orange and orange red whereas with the eosin dyes it is in the yellow or greenish yellow. At the same time it produces considerable sensitiveness to yellow, and it will be observed that the second half of the curve shows two maxima, one on each side of D. This fact has been observed by Eder and by Schumann (see fig. 3), and the absolute agreement between the results of three independent observers may be taken as establishing beyond a doubt the character of the sensitising action of this dye.

Eosin in aqueous solution exerts a distinct though slight sensitising action, and practically the same effect is produced by phloxin, though in the latter case the maximum effect is somewhat nearer to the line D. Erythrosin produces by far the greatest effect, whilst the action of rose Bengal is likewise strongly marked, it being much superior as a sensitiser to aqueous eosin, but inferior to erythrosin.

When the dyes are applied in ammoniacal instead of aqueous solutions their action as sensitisers is very much increased. Not only is the maximum effect greater, but the action extends to a greater distance on either side of the maximum, and thus tends to remove the region of minimum action in the green. With some of the plates which had been prepared with ammoniacal erythrosin it was difficult to recognize the occurrence of any region of minimum action. The effect of ammonia is greatest in the case of eosin, but even under these conditions eosin exerts a somewhat feebler sensitising action than aqueous erythrosin. With erythrosin and rose Bengal the effect of ammonia, although not so great relatively, is still very striking. Erythrosin in ammoniacal solution is the most powerful sensitiser for the less refrangible rays with which the author is acquainted.

The most remarkable and important result of the author's experiments is that gelatino-bromide plates steeped in a bath of aqueous or ammoniacal erythrosin, ammoniacal rose Bengal, or ammoniacal cyanin, *become more sensitive to the less refrangible rays of the prismatic spectrum (yellow, greenish yellow, orange), than to the blue or violet*—a reversal of the usual order of things.

This result is the more remarkable since the source of light employed is exceptionally rich in chemically active rays of high refrangibility. With the spectrum of sunlight there can be little doubt that the effect would have been still more striking. Eder found that silver gelatino-chloride stained with eosin is as sensitive to yellowish-green as to violet, and Vogel states that the commercial Clayton and Attout plates are twice as sensitive to spectrum yellow as the blue, but the author is not acquainted with any other published records of gelatine plates more sensitive to rays of low refrangibility than to those of high refrangibility. In this series of experiments—that is, with a prismatic spectrum of the light from burning magnesium—plates dyed with aqueous erythrosin or ammoniacal rose Bengal were about half as sensitive again to the yellow as to any part of the blue or violet; plates dyed with ammoniacal erythrosin are about two and a half times as sensitive to yellow as to blue or violet; plates dyed with ammoniacal cyanin are about half as sensitive again to orange as to blue or violet. In the case of erythrosin, the result with the spectrum is confirmed by the fact that plates treated with an ammoniacal solution of this dye were found to be quite as sensitive, and not unfrequently more sensitive to the light reflected from yellow pigments than to that from blue pigments.

It will be seen that whilst the author's results agree entirely with those of Eder in their general character, they differ considerably in the magnitude of the effects observed. The differences may be due (1), to the use of plates prepared in a somewhat different manner; (2), to the fact that in many of Eder's experiments the dye was added to the melted emulsion, whilst in the author's it was always applied in the form of a bath; (3), to the fact that Eder's bath solutions (1:20,000—1:30,000) were considerably weaker than those employed by the author. Comparative experiments showed that Eder's formula for the preparation of dyed plates for general photographic purposes gave a dye solution too weak to produce the maximum effect. The author's results may be taken as further evidence of the superiority of the bath process over the

method of adding the dye to the emulsion before coating.

It has already been explained that care is necessary when interpreting for practical purposes the results obtained with the spectrum. The fact that the curve which represents the action of the spectrum on plates dyed with ammoniacal erythrosin approximates more closely than in the case of any other dye to the curve which represents the action of the spectrum on the eye, indicates very clearly, however, that erythrosin, which was first strongly recommended by Mallmann and Scolik, will be the best sensitizer for general purposes. A number of experiments were, therefore, made, with a view to ascertain how far this conclusion was borne out by experience. The objects photographed include scales of colored paper, pottery, paintings, flowers, and landscapes, selected with a view to include not only blue and yellow, but a representative range of color. It has become a somewhat common practice, when orthochromatic processes are discussed, to confine attention almost exclusively to those two colors; but it must be borne in mind that when we are concerned with the gradations or "values" of a picture we have to take into consideration the entire color scale, and not blue and yellow only. At present the writer has no experience in the application of orthochromatic plates in portraiture, but arrangements are being made for a series of experiments in this direction.

The plates used in the experiments described were Paget Prize Plates XXX., but equally good results were obtained on Wratten and Wainwright's plates of ordinary rapidity. There is no reason to suppose that any essential differences will be observed between the results with different brands of plates, provided that the proportion of silver iodide is not excessive, and doubtless any good commercial plates of medium rapidity will answer equally well. In experiments *A*, *B*, and *D*, the plates were prepared according to Mallmann and Scolik's formula, but in all other cases the same formula was used as in the spectrum experiments. The yellow screen was a collodion film stained with aurantia. Exposed plates were developed with pyrogallol, made

alkaline with ammonia, and restrained with ammonium bromide.

In all the cases the experiments were strictly comparative. Ordinary plates were exposed without any screen, and dyed plates were exposed with a yellow screen, under exactly the same conditions of lighting, and *the time of exposure was the same in each case*. It is obvious, therefore, that any differences observed are not due to differences in the exposure. In some cases a dyed plate was exposed for the same length of time without any screen. Care was taken not to underexpose, and it is evident that since the exposures were amply sufficient for the dyed plates behind the yellow screen, the ordinary plates without any screen must have been greatly overexposed. Every chance was, therefore, given for yellow, orange, and green to register themselves on the plates; and, moreover, development was conducted with a view to get the best possible result out of the undyed plates.

Undyed plates exposed behind a yellow screen for the same length of time gave no trace whatever of a developing image. The sensitiveness of the plates to green, yellow, and orange is so small, that when the blue and violet are cut off by a yellow screen, the exposure must be prolonged 400 to 500 times in order to obtain an image. Even with sufficient exposure, the results cannot be strictly orthochromatic, since an ordinary plate is always more sensitive to green than to yellow, and more sensitive to yellow than to orange, whereas, it ought to have a maximum sensitiveness to yellow, and to be about as sensitive to green as to orange.

A.—A series of seven bands of colored paper with a mat surface; red, orange, yellow, green, dark blue, purple, and violet.

(1) *Undyed plate—no screen*.—Blue, purple, and violet, practically indistinguishable, and equal to white; green considerably darker; yellow, darker still, and orange darkest of all; red, comparatively light, owing to the fact that, like most red pigments, it was not pure, but contained a certain proportion of admixed blue.

(2) *Dyed plate—no screen*.—Violet, purple, blue, green, and yellow, all practically equal to white, and indistinguishable;

orange, much lighter than in the first case; red, somewhat darker.

(3) *Dyed plate—yellow screen*.—Yellow, brightest of all; green and orange, darker and about equal; violet, purple, blue, and red, all very dark; gradations very fairly correct throughout.

The cut on page 631 is not a very accurate representation of the results. In column (1), violet and blue should be nearly equal to the purple, which was a somewhat bright shade. In column (2), the first five colors should be practically all white. Column (3) is much more accurate.

B.—Bright yellow and brown plate with figures; dark blue and white Japanese vase, sage-green background (see page 631).

(1) *Undyed plate—no screen*.—Yellow plate almost black, great care being required to obtain even the more prominent details; blue of the vase almost equal to the white, the designs being practically unrecognizable; background too dark.

(2) *Dyed plate—yellow screen*.—Plate very much lighter, the details being very well rendered; blue of the vase almost black, the white figures being very distinct; background lighter.

C.—Dark blue and bluish-gray old German pottery; bright yellow plate.

(1) *Undyed plate—no screen*.—Plate very dark, with the principal details of the design barely visible; vases much lighter, with the difference between the gray and dark blue not sufficiently marked.

(2) *Dyed plate—no screen*.—Vases practically the same as in No. 1, but the plate considerably lighter, and the details more prominent.

(3) *Dyed plate—yellow screen*.—Plate bright, with the design well rendered; blue, much darker; gray, about equal to the yellow of the plate.

D.—White narcissi, daffodils, and jonquils, in blue and white vases.

(1) *Undyed plate—no screen*.—Jonquils very dark, and daffodils almost as dark, though with a considerable amount of detail in both cases; narcissi white; blue of the vases much too light, and the design scarcely recognizable.

(2) *Dyed plate—yellow screen*.—Narcissi white; daffodils almost as bright and full

of gradation and detail; jonquils slightly darker, with their orange centres still darker; blue of the vases nearly black, and the design well rendered; whole result very satisfactory.

*E.*—Primroses and violets in dark blue and white vase.

(1) *Undyed plate—no screen.*—Primroses well rendered, a result due to the long exposure and their pale tint, but their orange centres almost black; violets very much too light; design of the vase lost, the dark blue being almost as bright as the white.

(2) *Dyed plate—no screen.*—Practically the same result as in 1, except that the orange centres of the primroses are much lighter.

(3) *Dyed plate—yellow screen.*—Primroses practically white, but full of detail, and their orange centres slightly darker; violets very dark; blue of the vase also dark, and the design well rendered.

*F.*—Hyacinths (practically white) and single daffodils (orange) in blue and brown vase.

(1) *Undyed plate—no screen.*—Hyacinths white; daffodils full of detail, but very dark; vase too light.

(2) *Dyed plate—no screen.*—Hyacinths and vases as in 1, but daffodils very much lighter.

(3) *Dyed plate—yellow screen.*—Result very satisfactory; hyacinths white; daffodils nearly white, with beautiful detail; vase darker than in 1 or 2.

*G.*—Dark blue and purple pansies with dark blue centres.

(1) *Undyed plate—no screen.*—Blue and purple very light, but the yellow almost black, the relative gradations being completely reversed.

(2) *Dyed plate—no screen.*—Details and gradations fairly well rendered, but the yellow and blue practically equal in brightness, and, therefore, indistinguishable.

(3) *Dyed plate—yellow screen.*—Yellow practically white, blue and purple dark, the details and variations in shade being well rendered.

*H.*—Painting: Sunset (white, yellow, and orange) behind a church (dark olive-gray); sunset reflected in water, shadows of which are blue like the outer parts of the sky; brown tree trunk with foliage.

(1) *Undyed plate—no screen.*—Yellow and orange much too dark; church too light; blue of water and sky too light.

(2) *Dyed plate—no screen.*—As No. 1, the yellow and orange lighter.

(3) *Dyed plate—yellow screen.*—Sunset and its reflection bright, the orange being somewhat darker than the yellow; church dark; blue of sky and water darker than in 1 and 2, gradations generally very good.

*J.*—Painting: Landscape—church and trees in distance; trees, shrubs, and road in middle distance; in foreground cottage with red roof, under tree with brownish-green foliage; white horse and brown horse; rustic with blue sleeves and brown vest; girl in blue dress with yellow tippet; road yellow and brownish-yellow; sky blue and gray.

(1) *Undyed plate—no screen.*—Sky too light; foliage badly rendered; road too dark; brown horse too dark; roof of cottage almost black; yellow tippet almost black; man's sleeves and girl's dress much too light.

(2) *Dyed plate—no screen.*—Greens, yellows, and browns more satisfactory, but improvement not very strongly marked.

(3) *Dyed plate—yellow screen.*—Gradations well rendered; sky darker; improvement in foliage very marked, road lighter; horse lighter; yellow tippet much lighter; blue garments darker.

*K.*—Painting: Portrait—Girl with fresh complexion, golden hair, dark greenish-blue hat with white feather, pink and white dress, brown book in hand, landscape background.

(1) *Undyed plate—no screen.*—Face and hat fairly good, but contrasts too great; hair too dark and wanting in detail; book too dark; background too dark and deficient in detail.

(2) *Dyed plate—no screen.*—Distinct, though not very great improvement in relative gradations of greens, browns, and yellows; most marked in case of the hair.

(3) *Dyed plate—yellow screen.*—Very good result; face capitably rendered; hair full of detail and fairly bright; background much improved.

In the experiments relating to landscapes the same view was photographed under exactly the same conditions of lighting,

position, etc., on ordinary plates and on dyed plates, a yellow screen being used in the latter case. The exposure of the dyed plate with the screen was sometimes twice, sometimes thrice as long as the exposure of the undyed plate without a screen. It would be useless to attempt a detailed description of all cases, but the following examples will give some idea of the variety of subjects selected:

*L.—Foreground*—water, trees in yellow and yellowish-green foliage; *middle distance*—town with trees, large stone bridge; *distance*—undulating country with belts of trees, some haze.

*M.—Foreground*—Grass, water, trees with yellow, yellowish-green, and dark green foliage; *middle distance*—stone bridge, trees, and water; *distance*—town with many stone houses and red roofs.

*N.—Foreground*—road, stone wall, figure, water with fine reflection, trees in full foliage; *middle distance and distance*—river, with trees in full foliage.

*P.—Foreground and middle distance*—river with rocky bed, trees in full foliage; *distance*—hills with trees and ruined castle, slight bluish haze.

The negatives on ordinary plates show the well-known defects. The distance is much too faint, and if any haze is present, the details in the distance and middle distance are more or less completely obliterated; all brown, yellow, and green objects are much too dark; the water is too bright, and the reflections are frequently lost, the rendering of masses of foliage is unsatisfactory, and no distinction is made between yellow, yellowish-green, green, and dark green.

With dyed plates and a yellow screen the improvement is much greater than was anticipated. The rendering of masses of foliage is very fine, and the various shades of green are clearly differentiated. In the case of yellow spring foliage the improvement is particularly noticeable. The water is usually somewhat darker, with more gradation, and the reflections are much more faithfully rendered. Yellow and brown rocks, etc., are lighter, and have better detail. Great advantage is gained by the fact that the yellow screen cuts off the greater part of the atmospheric haze, and the improvement in

the clearness and detail of the distance is very striking. It is very well shown by cases K and P. Unless the tint of the yellow screen is too deep, the distance is not rendered so distinct that atmospheric effect is lost.

It will be seen from these results that very great advantages are gained by the use of orthochromatic plates for photographing all classes of colored objects. The plates prepared with erythrosin are deficient in sensitiveness to red, but in landscape work this color is not often met with. In other cases the erythrosin may be mixed with a certain proportion of cyanin. With the exception of this one color, the values "of the photographs obtained in this way are very fairly correct, and are at any rate an enormous improvement on the results obtained in the ordinary way. One very striking consequence of the more correct rendering of the "values" is a much greater stereoscopic effect. Stereoscopic effect in an ordinary picture depends, in fact, almost exclusively on correct values.

The use of a yellow screen is essential to the best results. If no screen is employed, blue, bluish-gray, etc., exert too great an action on the plate, and the density of the corresponding parts of the negative cannot be kept down without at the same time reducing the value of yellow, green, and similar colors. It is only when the intensity of the blue rays has been cut down that the images of yellow and green objects can be developed to proper density without the images of the blue objects—for example, the distance—becoming too dense.

Orthochromatic methods have for some time been used with great advantage for reproduction of paintings; and, in fact, have become indispensable in this class of work. The results obtained by Braun & Co., Dixon & Grey, and especially by the Berlin Photographic Company, are striking examples of the value of these processes. Indeed, it is safe to prophesy that orthochromatic methods combined with photogravure or collotype will be the methods of the future for the accurate reproduction of paintings.

In micro-photography the sensitiveness of the plates to yellow, orange, etc., is of the greatest value, especially in photograph-



ing objects which have been stained by the different methods in use amongst microscopists.

In astronomical photography, the increased sensitiveness of the plates not only reduces the exposures required, a very important gain, but the sensitiveness to yellow renders it possible to photograph many yellow and red stars which were formerly impracticable. Then, again, the ability to use a yellow screen, and thus cut off the atmospheric haze which so seriously interferes with photographic and other observations, greatly increases the number of nights on which results can be obtained. Moreover, when the yellow screen is used, it is not at all essential that the lenses should be corrected for what are commonly but erroneously called the "chemical" rays.

*Photo-chromo-lithography.*—Dr. H. W. Vogel has recently\* devised an extension and improvement of Ducos du Hauron's process of photo-chromo-lithography, which, if found workable, will furnish an *indirect* process of photography in natural colors. Ducos du Hauron used only eosin as a sensitizer, and photographed the object on different plates through screens of three different colors. He thus obtained three fragmentary images, each of which contained only those parts of the object the colors of which were transmitted by the screen that had been used. These images were transferred to lithographic stones in the usual way, and each image was printed with a pigment corresponding with the color of the particular screen that had been employed in its production. The superposition of these images, just as in ordinary chromolithography, gave a colored representation of the object. Since, however, only one sensitizer was applied to the plates, and only three screens and three pigments were used, the resulting pictures were crude and unsatisfactory, all the finer shades and variations of color being wanting. Vogel proposes to make a much larger number of images, and to use sensitizers corresponding with every region of the spectrum—for example, naphthol blue for red; cyanin for orange; eosin for yellow; safranin for green;

and fluoresin for bluish-green; the ordinary sensitiveness of the plate being sufficient for blue and violet. In taking the negatives the intensity of the blue and violet must be reduced by means of a yellow screen. The fragmentary images thus obtained are transferred to stones, and each is printed in a color complementary to that part of the spectrum to which the particular plate was sensitive. This complementary color is found, however, in the dye which is used to sensitize the plate, therefore, the separate images are printed with the dyes which have been used to produce them. Most of the sensitizers are, however, fugitive; and, hence, it is advisable to use as pigments, not the dyes themselves, but other colors which are spectroscopically equivalent, such, for example, as aniline-blue instead of cyanin. It is obvious that the greater the number of spectrum regions represented by separate images in this way, the more accurate will be the reproduction of the different shades and variations of color, and the more pleasing and successful the resulting picture.

An attempt has now been made to explain the principles upon which orthochromatic processes are based, and the methods by which these principles are put into practice. The measure of success hitherto attained has been indicated, and the author has endeavored by new experiments to confirm and extend previous observations. Many problems in both the theory and the practice of these processes have still to be solved, and further investigations are, in fact, now in progress; but it may be safely asserted that the developments of these methods, tardily as it has followed Vogel's discovery of the fundamental principle, constitutes an advance in photography, the importance of which it would be difficult to overestimate—an advance which not only renders it still more valuable as a handmaid to science, but removes the defect which has hitherto detracted so seriously from its value as a method of pictorial art.

An account of the various patents which exist in connection with the subject will fittingly bring these articles to a close.—*Photographic News.*

\* Annalen der Physik, 1885 (N. S.), 27, p. 130.

## HOW TO TEST THE STRENGTH OF A SILVER SOLUTION.

BY H. C. STANDAGE.

A FREQUENT cause of an imperfect photograph being obtained is due to the normal strength of the nitrate of silver bath not being maintained constant; one is continually decreasing the strength of the sensitizing solution; hence it is necessary to periodically ascertain its strength in the bath, and if below par, to bring it up to its normal state by an addition of argentic nitrate. There are two ways of ascertaining the strength of the bath—one, by means of an instrument called a "silver meter;" and the other a quantitative test.

By the first process, the method of ascertaining the strength is very easy and simple. The silver meter is in the shape of an ordinary hydrometer, and it is used in much the same way that a lactometer is used for testing milk. An upright, cylindrical jar is three parts filled with the sensitizing liquid to be tested, and then the instrument gently placed in the liquid; it sinks to a certain point, according to the strength of the solution, which may be read off by means of the scale engraved along the neck of the meter. The number of the divisions on the scale correspond to the number of grains of silver nitrate contained per ounce of the liquid. There are several drawbacks to the use of this instrument. In the first place, being made to sell at a cheap rate (a few shillings each), it is not always reliable as to accuracy; secondly, if the bath contains alcohol or ether, the "reading" given by the hydrometer scale will not be accurate, because these liquids will tend to make the liquid specifically lighter.

Such being the case it is better to ascertain the strength of the bath by a quantitative test. Such a test is performed as described below. In a quantitative test accurate results depend on the purity of the reagent employed, therefore in the present case it will be as well for the experimenter to make his own reagents. In the present test, *pure* sodic chloride is needed—therefore proceed to make it thus: Take some best carbonate of soda, put it in a vessel, and pour over it some pure hydrochloric

acid; when the sodic salt has dissolved, add a little water, place the liquid in an evaporating dish (a saucer; if the latter be used it should be a thin china one, and held on an iron shovel over a clear, hot fire), and place this dish and its contents over a spirit flame, and heat the liquid until it is reduced one-half; then set aside to cool, and allow the salt to crystallize out. This salt, to obtain greater purity, should be collected and redissolved in pure water, and again allowed to crystallize. Having obtained the pure crystals of chloride of sodium, put them in a clean evaporating dish, and fuse the crystals at a moderate heat (the saucer used as before will answer for this purpose). This fusion is to drive off the water contained in the crystals. Then dissolve this fused chloride of sodium in distilled water in the proportion of  $8\frac{1}{2}$  grains of salt to 6 fluidounces of water, or at the rate of 1 grain of chloride to 3.35 grains of water, or one drachm of water will contain a trifle more than one-sixth of a grain of salt. A standard solution is thus made which will frequently save much time in calculating, since one drachm of this sodic solution will precipitate half a grain of nitrate of silver.

Having thus made a standard of pure sodium chloride, it is used as follows: carefully measure out a drachm of the bath solution into a measuring glass—a small minim measure will ensure greater accuracy than an ounce or two-ounce measure—and place this quantity of liquid in a stoppered bottle, and to insure that all the salt in the solution shall be operated on, rinse out the measuring-glass with a drachm of pure water, and put it into the bottle. Next recalling to mind the quantity of nitrate of silver known to have been present (*i. e.*, when the bath was made up), add a drachm of the sodic chloride solution for every four grains of nitrate which the bath originally contained. Then shake the contents of the bottle briskly, to thoroughly separate the curdy mass of argentic chloride produced. Then let the bottle rest until the contents clear themselves. When the chloride of silver has settled, repeatedly add thirty minims of the solution of sodic chloride until there is no *milkiness* caused in the liquid, shaking the bottle briskly at each addition of the salt solu-

tion. Make a note of the number of drachms of salt solution employed, and, when the point of no milkiness is reached, reckon up how many drachms of the salt solution have been used, discarding the last half drachm in the reckoning; then multiplying the number of drachms of salt solution by four, we get the weight in grains of the argentic nitrate present in one ounce of the bath.

Still greater accuracy may be obtained by adding the salt solution in fifteen instead of thirty minims; the first method will indicate the strength of the bath to within two grains to the ounce, whilst the latter one will indicate to a single grain.

Even when the nitrate of silver bath has become nearly black, the discoloration being due to the albumen used, it can still be used for sensitizing. But filtering the bath solution through bone-black—*i. e.*, animal charcoal—will decolorize the liquid. Pure china clay, or “kaolin” is a much better substance to use. Put a quarter of an ounce of this clay into a vessel containing twenty ounces of bath solution, and thoroughly shake the mixture; then pour the contents on to a filter-paper, when the solution will pass through colorless. Another method is to make a solution of argentic chloride by mixing common salt with a solution of nitrate of silver, and then adding this curdy argentic chloride to the bath solution, and shaking the latter; the brown subalbuminate of silver will be carried to the bottom of the vessel by the former silver salts, leaving the supernatant liquid clear.

When the nitrate of silver bath becomes too alkaline for the reaction of the albumen, in which condition the action of the bath is enfeebled, because the albumen is not properly coagulated therein, ten grains to the ounce of argentic nitrate should be added and a few drops of glacial acetic or citric acid.

*Taking specific gravities.*—Alcohol, pure. The specific gravity of this liquid at the temperature of freezing water is 0.791; that of proof spirit is 0.916; ether, 0.716; naphtha, 0.848.

The following facts should be remembered: The unit of specific gravity is the specific gravity of pure water at the tem-

perature of maximum density (39.1° Fahr.). The weight of a gallon of liquid in pounds avoirdupois is equal to its specific gravity multiplied by 10.

It is not necessary to have a balance in order to ascertain the specific gravity of a body, for by means of a suitable hydrometer, either the weight of a solid or the density of a liquid can be easily obtained.

The word hydrometer is from two Greek words, meaning a water measure. It is the name given to a class of instruments used for determining the densities of liquids by observing either the depths to which they sink in the liquids, or the weights required to be attached to them to make them sink to a given depth. According as they are to be used in the latter or the former of these two ways, they are called hydrometers of constant or of variable immersion. The hydrometers of constant immersion most generally known are those of Nicholson and Fahrenheit.

Nicholson's hydrometer consists of a hollow cylinder of metal, with conical ends, terminated above by a very thin rod, bearing a small disk, and carrying at its lower end a kind of basket. This latter is of such weight that when the instrument is immersed in water, a weight of 1000 grains must be placed in the dish above in order to sink the apparatus as far as a certain mark on the rod. If the weights in the dish be called  $w$ , and the weight of the instrument itself  $W$ , the weight of liquid displaced is now  $W+w$ , whereas the weight of the same volume of water was  $W+1000$ . Hence the specific gravity of the liquid is  $\frac{W+w}{W+1000}$ .

This instrument can also be used either for weighing small solid bodies, or for finding their specific gravities. To find the weight of a body (which we will suppose to weigh less than 1000 grains), it must be placed in the dish at the top, together with weights just sufficient to make the instrument sink in water as far as the mark. Obviously, these weights are the difference between the weight of the body and 1000 grains.

To find the specific gravity of a solid, we first ascertain its weight by the method just

described; we then transfer it from the dish above to the basket below, so that it shall be under water during the observation, and observe what additional weights must now be placed in the dish. These additional weights represent the weight of the water displaced by the solid, and the weight of the solid itself divided by this weight is the specific gravity required.

Fahrenheit's hydrometer differs from Nicholson's in being constructed of glass, and having at its lower extremity a ball weighted with mercury instead of the basket. It resembles it in having a dish at the top, in which weights are to be placed sufficient to sink the instrument to a definite mark on the stem.

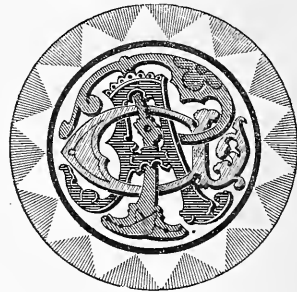
There are several other forms of hydrometers, adapted, however to special purposes. The general method of ascertaining the specific gravity of a liquid is by means of a "specific gravity bottle." This bottle is made to hold a definite quantity of water—say 1000 grains. It has a ground-glass stopper, which has a capillary bore running through it. A notch is cut in the neck of the bottle to indicate the height reached by 1000 grains of water at the maximum density, and the stopper fits close down to this notch, so that no air-bubbles shall be between the lower end of the stopper and the top of the liquid; the bore in the stopper is to allow of superfluous liquid to pass through when the stopper is put in. Counterpoise weights, exactly equivalent in weight to the bottle and stopper when empty are sold with the bottle.

This bottle is thus used: It is filled with, say, water, the stopper put in, superfluous water allowed to escape, and the stopper placed so as to just reach the notch marked on the neck of the bottle; the outside is then wiped perfectly dry, and the bottle and its liquid contents placed on one scale-pan of a balance or pair of scales, while the counterpoise is placed on the other scalepan, together with weights sufficient to exactly counterbalance the bottle and its contents. If the water is of the maximum density, and pure, it will require exactly 1000 grains weight to counterpoise it; if less weights are required, that indicates that the water is specifically lighter than the unit of specific

gravity, or in other words, the water in the bottle has a lighter or less specific gravity than pure water at the maximum density. For example, if the water requires only 995 grains to counterpoise it, the specific gravity of the water is 995, whereas, if it requires 1005 grains, the specific gravity is 1005, or 5 grains heavier or denser than the unit of specific gravity. Now, knowing the capacity of the bottle when filled with water, the specific gravity of any other liquid is easily ascertained, for the bottle has only to be filled, as just described, with that liquid (of course, the inside of the bottle being perfectly dry before putting the liquid in), the whole wiped dry and placed on the scalepan, with the counterpoise placed on the other pan, the weights then require to be placed on this pan to counterbalance the bottle and its contents. These indicate the specific gravity of the liquid. For example, if 1500 grains are required, the specific gravity of the liquid is 1.5 or half as heavy again as the same bulk of water.

Thus, by comparing the weight of a liquid thus obtained with a bottle of specific gravity, it is easy for the operator to ascertain whether the liquid he is using is of the standard strength or not.—*The Camera.*

### PERTAINING TO THE



MINNEAPOLIS.

Minneapolis by all means. I have read with surprise the communication of "D" in your last issue. It was the first intimation I had that there was any "unhappiness" because Minneapolis was chosen for the next Convention and Exhibition. It is the choice of the last Convention. The matter was discussed on two different days, in convention; it was carefully canvassed

by many earnest ones outside; it was pressed for by the generous craftsmen who live there and are ready to receive and welcome us with open arms; it is the place where things grow. It would be a piece of unprecedented usurpation of authority for the Executive Committee to change it. It cannot be voted on now, conveniently. Let us make Minneapolis a success, and make it send forth as much good as we have had from all the other conventions. Minneapolis by all means. Yours in real earnest, though I only focus,  
A SMALL CAMERA.

#### THE PRIZE RULES.

I ask space for the publication of these lines, which may be of interest to all who anticipate competing for the prizes offered for award at the next annual Photographers' Convention. I have read several communications relating to the subject, but so far I have seen nothing upon the important question: By what standard or rule are the competing pictures to be criticized by the jury? I do not know that they would feel complimented by being questioned in what appears to be their own business, but it is evident that public understanding would prevent complications and produce harmony among all interested. If the pictures are to be adjudged as works of art, then the artist who makes them must form his conceptions, treat them as their nature suggests, and according to laws of art. Such measures would probably ignore the charm of accidental effect, so popular and interesting in photography. The jury would be embarrassed in comparing the merits of pictures different in nature, and each competitor would claim recognition for his art or oddity, or something else original, if a rule is not established. How can a photographer intelligently make pictures for the coming competition unless he understands how his work is to be considered? And what hope has he for reward unless he is a mighty good friend of his critics?

If photography has reached a higher point in art than that which simply pleases people or decorates their houses, then its dignity as an educator and medium for expressing the sentiments of the soul is sufficiently promi-

nent to be criticised by an intelligent person, without having his opinion unduly influenced by the frame or mount which surrounds it. This was not the general impression at the last Convention. The subject for illustration is also a question for consideration. It is difficult to say who can make the best picture, but not so difficult to ascertain who can treat a subject best. Some may be conceded enough to object to nearly any subject except of their own fancy, or that which surrounds them, forgetting that the subject should be simply intended to limit the conceptions enough to allow comparisons by the judges, without offending the sentiment or individuality of any one, and they may accuse others of imitating the works of artists, thereby stealing their conceptions and compositions. It is safe to say that nothing would benefit the art of photography generally more than the imitation of the works of well-known painters and sculptors.

It is not intended that these words should suggest any special subject, but rather as a suggestion that those who have the authority to do so, solicit the opinions of others who may assist them in their honorary duty, and so advance interest in the photographic art of this country. Such is the youthful desire of

Your humble servant,

S. D. ROGERS,

St. Louis, Mo.

Operator at Strauss'.

### THE PHOTOGRAPHERS OF THE ECLIPSE.

OUR friends who went to Japan to view the eclipse were defeated by the bad weather. In his account of their outfit and experiences, Mr. W. J. Holland gives the following interesting points concerning the photographic apparatus provided.

#### INSTRUMENTS OF THE OBSERVERS.

The principal instrument set up was a horizontal photoheliograph. This is in fact a telescope, having a focal length of forty feet and an object glass five inches in diameter, which is placed in an exactly horizontal position upon the true meridian or North and South line, and into which the

image of the sun is reflected by a mirror kept in motion by clockwork and known as a heliostat. The advantages furnished by this instrument over the other forms of telescope in which the glass is pointed directly at the sun is that it is perfectly stable, its more delicate parts being mounted upon stone piers, and is easily manageable. A further advantage is that it gives images of the sun proportionate to the focal length. In the Shirakawa instrument, which is the same as the one employed at Peking in 1874 and again in Florida in 1882 for observing the transit of Venus, the images of the sun's disk at the focus are  $4\frac{1}{2}$  inches in diameter. At the focal end of the long tube of the photoheliograph a photographer's dark-room provided with triple doors is erected. In this room the image of the sun is received upon a sensitive plate set up in a plate-holder carefully adjusted at right angles to the axis of the telescope. The photographer and his assistants practically work inside of their camera. Just in front of the plate upon which the image of the sun is focussed is a fine plumb line of silver wire, the image of which is photographed upon each plate, giving the direction of a true vertical line at the time each picture is taken. In front of the plumb line a plate of glass having ruled upon it in exceedingly fine lines a reticule of squares of known dimensions is securely fixed. The images of these lines are also photographed upon the plate and afford by comparison with the plate upon which the originals are ruled a means of accurately determining any shrinkage which may occur in the photographic film in the interval between exposure and the moment when the picture is read off after being brought to the United States.

A number of devices, consisting mainly of cords and pulleys, suggested by the fertile brain of Professor Todd and ingeniously worked out by Passed Assistant Engineer Pemberton, who is, by the by, a most skillful mechanic, were attached to the photoheliograph and enabled the photographer in charge to regulate in an instant the position and motion of the mirror of the heliostat forty feet away from him as well as to control the amount of light admitted through the instrument. This device was facetiously

dubbed "The Gyroscutis." The main object sought to be obtained by means of the photoheliograph was the production of 100 or more photographs, representing the progress of the moon across the disk of the sun from first to final contact. This is a task never before undertaken, and if successfully achieved would have furnished data for the correction of certain elements in the lunar tables, upon which mariners and others rely to a certain extent for the determination of position. Another object sought to be achieved was the production of photographs of the corona upon a vastly larger size than ever before attempted, and there was even reason to believe that had the meteorological conditions proved favorable this extremely desirable end would have been accomplished.

#### SIBERIAN EXPEDITION.

The expeditions to Siberia were more successful. The St. Petersburg correspondent of the London *Times* says:

The expeditions to Krasnoyarsk, in Siberia, and Petrofsky, in the Jaroslav province, appear to have been about the most favored. At the former place a number of important sketches and photographs of the corona were achieved. At Petrofsky the specialty of the observations was the search for the supposed planet Vulcan. For this purpose Professor Glazennapp fixed his "comet finder" upon Leonis, close to the sun, but the presence of thin nebula prevented the continuance of the search. He then turned his attention to the corona, and obtained seven sketches of it and two photographs. In a letter to the *Novoe Vremya* he categorically asserts that his observations have led him to the positive conclusion that the corona is a real and not an optical appearance, and not, as some think an illuminated shower of meteoric dust. Prince Gagarin succeeded in photographing the corona at a village fifteen miles from Zaveedovo, on the Moscow Railway. He says that very bright small spots were visible on the corona at the upper right hand edge of the sun, while on the opposite side the corona exhibited dark indentations. Several photographs seem to have been pretty successful. In one case, however, a Russian photographer has

already begun proceedings in a Leipsic court for 300 roubles, the expense of a journey to photograph the eclipse. This sum was to be paid to him by a German newspaper editor, but the editor now refuses to pay because the photographer, owing to the bad weather, failed to take any views for his employer. The firm of Court photographers, Messrs. Levitsky, alone caught a view of the sun, half eclipsed, at Tver, and this firm both at Tver and in St. Petersburg, made some valuable observations on a curious feature of the eclipse which was noticed at several of the overclouded places not in the centre of the zone of totality—namely, that the light did not diminish during the eclipse, or that, as in St. Petersburg, the light actually increased during the phenomenon instead of diminishing, to the utter dismay of all observers. This is accounted for by the absorption and retention of light by the thick masses of cloud.

Another valuable illustration for photochemical science was obtained by Messrs. Levitsky in views showing the great difference in the power of the light during two-thirds of the obscuration of the sun and at the moment of totality. The sun's crescent was photographed 15 minutes before the full eclipse in  $\frac{1}{200}$ th part of a second with a diaphragm having an aperture as small as a pin's head, while at the moment of totality a view of the town of Tver took two minutes to photograph with a diaphragm of  $\frac{3}{2}$  centimetres aperture.

### PICTURES OF THE PRIZE TAKERS.

NEW YORK October 1, 1887.

DEAR SIR: For the pleasure and instruction of the members of our craft who could not visit the Chicago Exhibition, I propose to make up some mosaic pictures for the PHILADELPHIA PHOTOGRAPHER of the best work exhibited.

Will you kindly furnish me an unmounted print of (subject here named by us) for that purpose?

Full credit will be given.

Yours truly,

EDWARD L. WILSON.

The above is a copy of a letter we addressed to all of the gentlemen who were awarded medals at the Chicago Exhibition. Our purpose is explained by the letter. It seemed to us that such a course would be very acceptable as well as helpful to our readers, and give them something profitable to look forward to in our early numbers for 1888. Thus far our suggestion has met with a most generous response, and the results will begin to show up *in our next issue*.

The first instalment will be "A Lady Fair," from a negative by Mr. H. McMichael, of Buffalo. The subject is of a young miss whose picture appeared of various sizes in Mr. McMichael's exhibit, and was one of his "prize-takers." It is a lovely example of plain, unadulterated photography, printed direct from the negatives.

Following this will be a mosaic picture made up of four of the full-sheet genre pictures which helped to secure first prizes for their makers, at Chicago. The series will consist of four subjects, so that the reductions will be quite large, and give the student every opportunity to understand the composition, chiaro-oscuro, and technique. This is the group:

1. "Man, Know thy Destiny," by James Landy.
2. "The Young Artist," by G. Cramer, St. Louis.
3. "The Harpist," by J. C. Strauss, St. Louis.
4. "Gathering Oranges," by C. W. Motes, Atlanta, Ga.

The second series will be made up as follows:

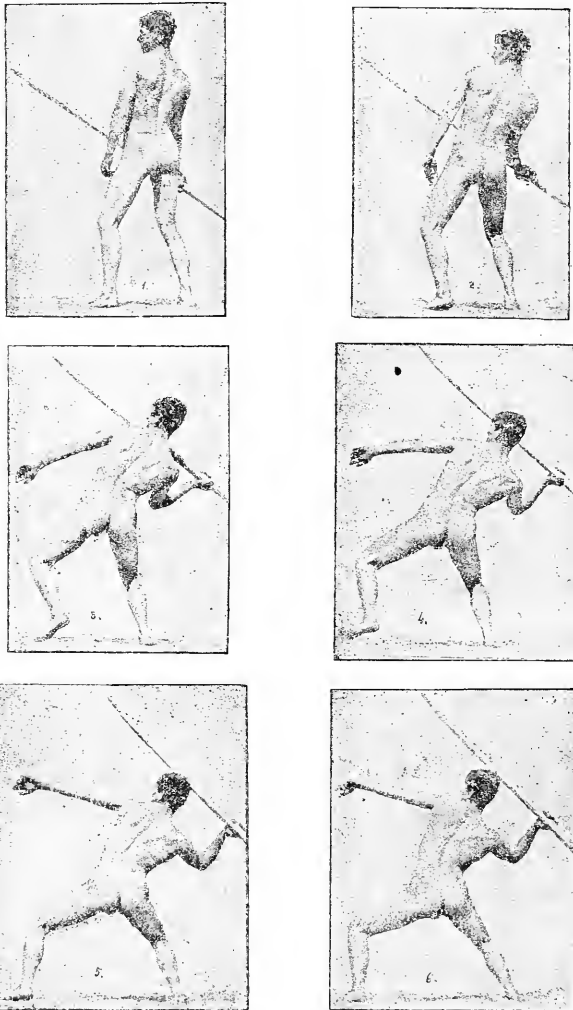
1. "The Tambourine Girl," by G. Cramer, St. Louis.
2. "The Maniac," by Montfort & Hill, Burlington, Iowa.
3. "The Flute Player," by H. A. Randall, Detroit, Michigan.
4. "The Potter at the Wheel," by Knoff Brothers, Louisville, Ky.

Following these will be a mosaics made up from the studies of Mr. Oscar Suck, of Carlsruhe; another made up of selections by the gentlemen who won medals at Chicago; and a Niagara View by Mr. George Barker, the winner of the diamond badge.

In addition, to make the work complete, we have persuaded the generous prize takers to give us for publication, notes of their manners and methods of work, supplemented sometimes by direct dark-room dodges from their assistants. Wont all this help you through 1888?

going on in this and other countries, by the publication, not only in our own but in other magazines and newspapers, of descriptions and illustrations of the results. The earliest efforts made to record the varied changes made by a body during one act, so to speak, were with animals—first with the

FIG. 1.



### PHOTOGRAPHY ON "THE GO."

THE readers of our magazine have been made familiar with the interesting experiments in instantaneous animal photography

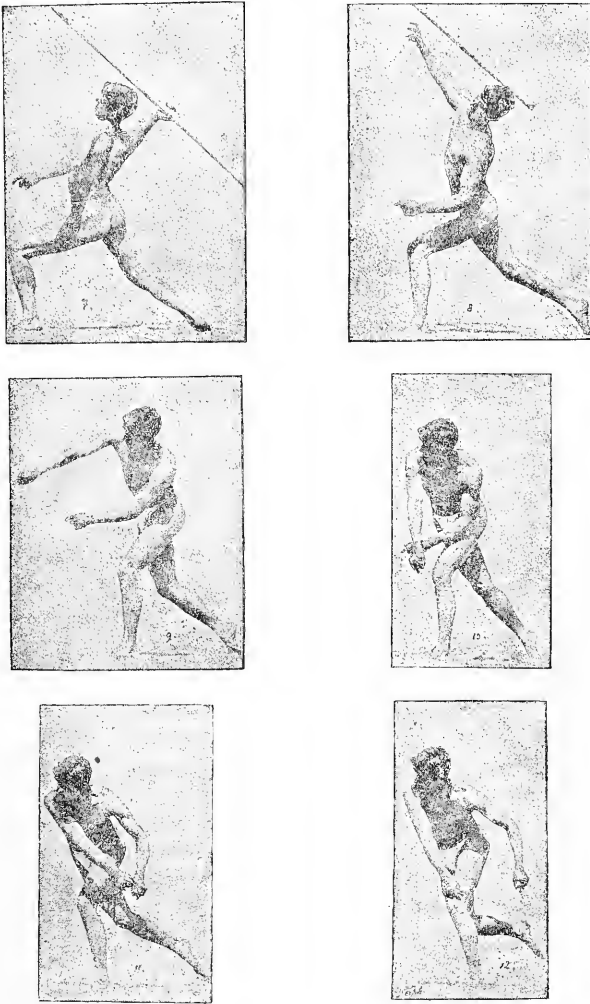
horse, we think. We have reproduced engravings from some of the plates obtained, and in the *Century* magazine for September others were given. On page 328 of our current volume we reprinted Dr. Stolze's ac-



count of his examination of Anschutz's pictures of the Spear-thrower and other subjects. In the *Scientific American* (supplement) for February 5th and 12th, Mons. Marey's method of making animal pictures

late, in addition to what has been named above, material that would give a thorough and intelligent comprehension of this novel reach of our wonderful art, our hope being that we may assist in providing one more

FIG. 2.



in this way was illustrated, translated from *La Nature*. In *Scribner's Magazine* for November other pictures in this line are shown of athletes.

All these have excited so much interest among the thoughtful ones who read our magazine that we have endeavored to col-

way in which photography may be employed as a diversion, and as a means of information.

The chief experimentalist in this line in our country having given no information as to his methods, much to our regret we are forced to go abroad, where, thanks

to our generous contemporaries, we are able to find abundant material with which to carry out our scheme.

The first paper is from one of our German contemporaries, which alludes to Mr. Anschutz's work, as follows:

In 1886 Anschutz took a series of pictures which, for the science of anatomy and also for artists, painters, sculptors, etc., bear great significance. By means of these photographs the varied movements of a spear-thrower are well illustrated.

These pictures represent spear, stone, and discus (quoit) throwers in twenty-four series, taken by means of as many photographic apparati, which, joined together by electric wires, begin to work as soon as the current, which has been held open, is closed; and this is done by the object to be taken itself. By the aid of different instruments the time of taking can be adapted as far as possible to the then existing kind of motion, and twenty-four pictures can be taken in 0.72 seconds up to 10 seconds, which time, as well as the intervals between each picture, can be measured by a Siemens' Spark Chronograph. Thus, for instance, the taking of a spear thrust occupied  $1\frac{1}{2}$  seconds.

Anschutz portrayed by these pictures the different quick movements accomplished by the human body in the shortest time by means of energetic muscular exertion. Of these motions our eye only receives an impression or two following one another, but by means of instantaneous photography these actions are separated into a longer chain, and each movement illustrated.

He was so fortunate as to find a man, out of those presented for his choice (from the garrison of young athletes in Lissa), whose form was the perfection of bodily beauty, combining strength, muscle, and slimness, with an equal development of all his parts. The Figs. 1 and 2 represent the motions of this young man as taken by Anschutz. During the course of each of these movements, from the first appearance up to the very last, he took the pictures. The original pictures were small, but were enlarged to their present size by photographic means.

The naked body of the young champion portrayed in these motions is simply used to show more perfectly the postures and

movements, and they form a worthy study for the painter.

The action of the spear-thrower fulfilled in the fleeing moment, from the first slight raising of the lance, to the lifting up and toward the mark when the body is brought into violent action, is certainly charmingly represented in these cuts. And what fulness of the limbs is seen here! What changes the unoccupied left arm even shows! In the first picture his fingers, slightly curved inward, hang down loosely; then, from figure to figure, notice how the hand gradually closes, to help him sustain the thrust or establish his equilibrium—now energetically outstretched, then bent crooked, but always changing, forming an excellent character study. The turning of the shoulder blade, the play of the muscles in the upper arm, the rotating of the hand, the spreading, locking, and curving of the fingers make an effect in the picture as if chiseled out of marble. These are very lovely.

Next we come to consider the

#### MOTIONS OF A BIRD DURING FLIGHT.

We find they have been recorded from three standpoints.

These complicated motions have been fixed by Mons. Marey, in France, by as many as possible instantaneous photographs taken while the bird was flying, and these pictures show forth the most varied positions of the organ of flight. Since the movements of the wing took place in the room, it was necessary to project the pictures from the three dimensions of the room, and Mr. Marey accomplished this in this way: he photographed a flying movement first from the side, then as far as possible from underneath, then from above. How Mr. Marey overcame the difficulties attendant upon this, need not be discussed here. The accompanying figure (3) illustrates the result of his effort.

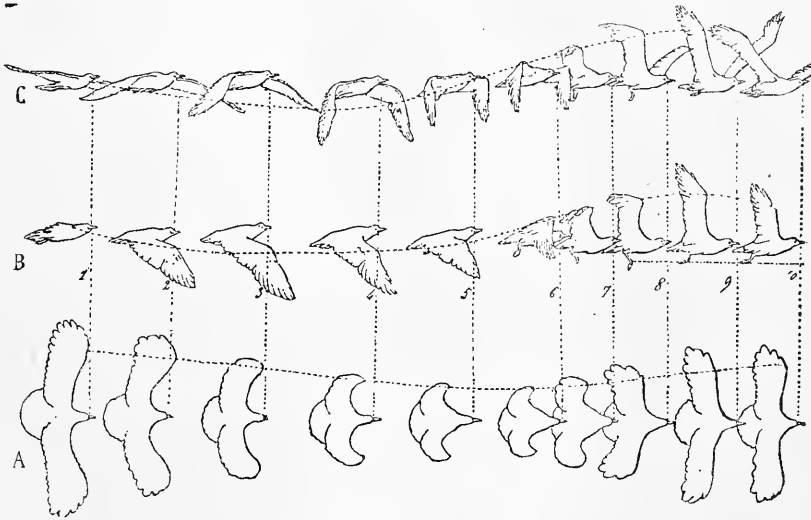
This is a diagram taken from the photographs of the projections of the wing upon the three coordinate planes of the room, in ten different successive movements of a whole period of the wing motions. The pictures marked A give the view of the wing as seen from above; B that from the

side, and C that from below. In order to obtain a correct representation of the position of the wing at each separate movement, and of the motion between one and the next following, it is necessary to combine the three figures belonging together, and which are connected by the vertical lines. The drawing begins at a moment when the wing, seen from above, quite unfolds and is spread out horizontally in about the middle of the lowering, and when, seen from below, only the ends of the flag-feathers appear to be raised a little. In the fourth picture the wing begins its outward motion, in the sixth it is drawn nearest to the body, in the ninth the wing is most completely unfolded from above and then begins to lower.

#### REGISTERING THE LINES OF EXPOSURE IN INSTANTANEOUS PHOTOGRAPHY.

The readers of *La Nature* have frequently seen during the last years, reproductions of instantaneous photographic prints. They have also read the description of a certain number of stops; these are the appliances by means of which the exposure is reduced sufficiently to seize objects in motion. They have remarked that certain prints were obtained in one-fiftieth and one-hundredth of a second, and even much less. They are justified in asking how it is possible to measure such small fractions of time, and what value should be given to the specified figures? We will now answer this question,

FIG. 3.

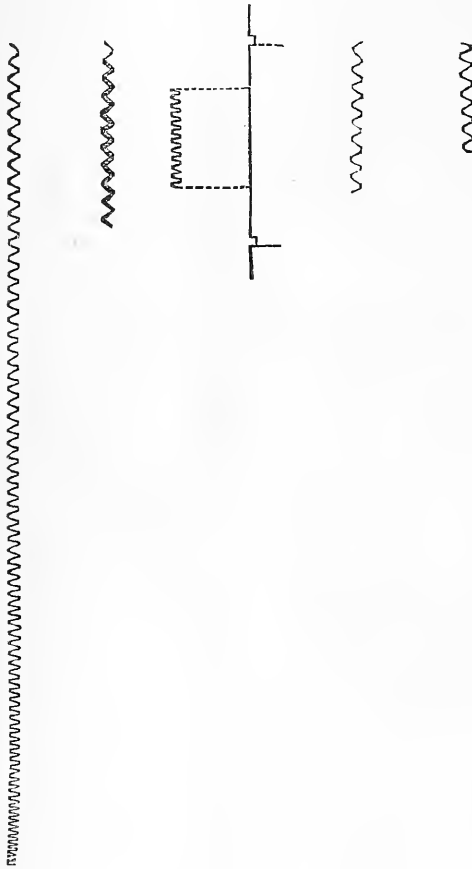


The most remarkable example of birds caught on the fly, is "The Gulls," by Mr. C. T. Mallin, Southport, England, copies of which we supply for him, but of which we have no good engraving to accompany our article. Over fifty of the graceful creatures are caught, "as they fly" and not by the stiff precision of a scientific instrument. Now we come to the one grand optical point of interest which has grown out of this effort, so far, for which we are indebted to Mr. Albert Londe, the distinguished French artist. We reproduce his paper entire as follows:

see if the time of exposure in instantaneous photography can be measured, and how it can be done. We intend to speak in this work only of portable stops, especially adapted to amateurs, and with which it is possible to obtain complete clichés. Other appliances exist adapted to scientific investigations, but we will lay them aside, because in the methods to which they apply, photography is not the object, but simply the means, the process of study and observation. In this case it is possible to find a far greater degree of rapidity, from the fact that the stop is a part of a fixed installation,

and that the prints which are simply documentary do not require to have the perfection which we have a right to exact in current photography. Divers methods have been indicated to measure the time of exposure; they may be divided into three classes: The graphic methods, the optical methods, and the mixed methods, that is to say, those which are a continuation of the

FIG. 4. FIG. 5. FIG. 6. FIG. 7. FIG. 8.



two. By the first the mechanical operation of the stop is registered; by the others the time is measured during which the light acts usefully on the sensitive surface. If, for example, we place a strip of smoked paper on a photographic guillotine, and if a diapason whose style lightly touches the surface of the paper is made to vibrate, we will obtain, when the apparatus is in opera-

tion, a sinusoid comprising a given number of vibrations. By counting the number of vibrations comprised between the moment at which the object is uncovered, and that at which it is covered again, and as the number of vibrations of the diapason in one second is known, it is easy, by a simple calculation, to deduce the time that has elapsed between the opening and the closing. We have here a mechanical registry, an example of the graphic method. This method would be the simplest if light penetrating an objective acted on the sensitive surface as soon as a portion of the lens is uncovered; but it is not so, as we will presently prove, and the value of graphic methods is reduced by the fact that the bases adopted for counting the time of exposure, that is to say, the opening and the shutting of the lens, are purely hypothetical. In the optical methods we are only called upon to measure the time during which the light acts usefully on the sensitive surface; photographically speaking, it is the only thing useful to know, and for this single reason the optical methods are *a priori* greatly preferable to the graphic methods. M. Vidal has indicated a method of the second category. It consists in photographing a needle having a rotary motion. This bright needle moves over a black dial having white divisions, and makes a revolution in one second. During exposure it moves over a certain number of divisions, according to the rapidity of the stop. By developing we obtain the image of the dial, and a white sector which exactly corresponds to the displacement of the needle.

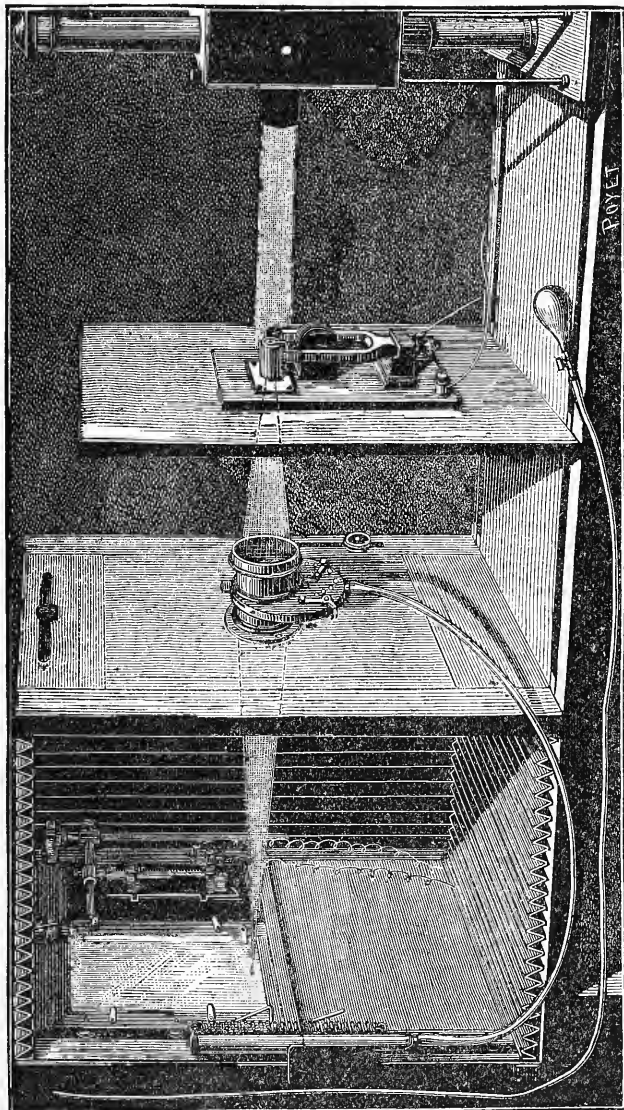
If the dial be divided into six hundred parts, and if the needle have moreover ten divisions, the conclusion may be reached that the light has acted  $\frac{1}{6000}$ , say  $\frac{1}{60}$  of a second. The sole condition, and it is an important one, is, that the needle should move over equal spaces in equal durations of time. In a practical point of view this is a serious objection, as there is nothing more difficult in mechanics than to obtain a perfectly regular rotary motion. The most improved regulators are always liable to show slight variations.

In these conditions, and in order to have no note to take of the absolute regularity of

the motor, we have proposed to control the motion of the needle by the use of the diaphragm. We believe that when it is necessary to measure hundredths and thousandths of a second, it is necessary to eliminate, a

ball falling freely along a graduated scale. The ball leaves, according to the time of obstruction, a longer or a shorter tracing. Knowing the commencement and the end of this tracing, in connection with the point

Fig. 9



*priori*, all causes of error, and to use only the methods which have a veritable scientific exactness. Another method, pointed out by M. Jubort, and taken up by M. de Labaume Pluvinel, consists in photographing a bright

of departure and the divisions of the scale, it is possible to deduce, by applying the formula of the law of falling bodies, the time during which light has been active. This method, perfect in theory, is, nevertheless,

rather delicate in its application. It is necessary, in fact, to loosen the stop only when the ball has already acquired a certain rapidity; it is necessary to make a series of calculations in which must be taken into account, for example, the intensity of weight at the place at which the operation is performed; it is, moreover, rather difficult to determine in a precise manner the commencement and end of the tracing, all of which reasons go to make this method, although presenting a highly scientific character, but little practical.

It also has, with the dial method a common objection, namely, it requires a very strong light, and, therefore, cannot be used every day. We had thought that the diapason applied to this method would greatly simplify it by doing away with all calculations, and giving it absolute precision.

It would then be necessary to substitute for the bell a brilliant point fixed on a large sliding planchette, having a smoked glass for recording the vibrations. We will describe further on an appliance we have made to carry out these views. The methods that we have spoken of above, not being applicable at all times, which is a serious obstacle in making continuous work, the diapason alone giving the desirable precision, whilst at the same time reducing the calculation to the simple numeration of the vibrations, we asked ourselves if it would not be possible to record on the photographic plate itself the time of the action of the light measured in fractions of a second.

With this view we have indicated a mixed method which is in some measure a combination of the other methods, and propose an apparatus of which this is a description: It resembles a photographic camera, having three sections moving on a large chariot (see Fig. 9). The front section has an electric diapason; the middle one the stop to be essayed, and its objective, the last the registering dial. An electric focus is the complement of our installation. The diapason gives one thousand simple vibrations per second (Fig. 4). One of its branches carries a small metallic plate having an opening of very small diameter. This opening is covered with dioptric paper. When strongly lighted by the electric focus, it will act itse

as a luminous source. It will light the objective, and throw its very brilliant image on a ground-glass placed on the registering dial. This is composed of a double frame moving by means of small wheels over two metallic rails. It can receive either a ground-glass for focussing, or sensitized plates at the moment of the experiment, and even a plate of smoked glass for certain studies. This frame is suspended by a hook which can be raised by means of a pneumatic apparatus; when it is abandoned, it can fall from all its height. This being said, let us see the working of the apparatus. The point brightly lighted shows its image on the bottom of the ground-glass, the frame being in its most elevated position. When the diapason is made to vibrate by means of an electric current, the point displacing itself laterally with the branch that supports it, we will have on our plate a luminous line; if at this moment we loose the registering dial after having replaced the ground-glass by a sensitive plate, we will have a tracing having the form of a sinusoid, and occupying the whole of the height of the plate (Fig. 4).

If now we make another experiment by operating with the stop, the light being only able to pass when the stop is acting, we will obtain a tracing giving the expression of the time during which the light has acted. It suffices to count the number of the recorded vibrations to determine in thousandths of a second the precise value of this time (Fig. 5). The fall of the registering frame should be rather rapid; this is absolutely necessary in order that the vibrations should have sufficient space between them to permit their being counted. It is indispensable even that the stop should only be loosened when the frame is actually falling. To obtain this result we make use of two closed tubes, one within the other, and forming a piston. The fixed portion of the lower tube, attached to the mounting of the frame, has at the bottom an adjustment on which is placed the rubber tube of the pneumatic apparatus which moves the stop. The upper tube, of rather smaller diameter, is made to move within the other by two strong lateral springs, but it can be kept at the top of its course by a catch fixed in such a manner that the frame cannot pass without causing it to tilt.

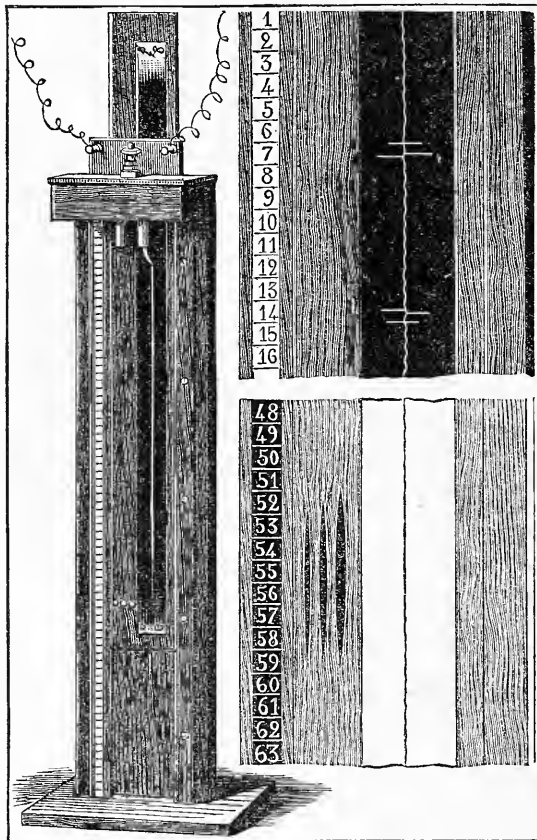
The movable tube is then carried by the springs, it violently compresses the interior air, and loosens, in consequence, the stop precisely at the moment at which the frame has acquired a degree of rapidity sufficient for the proper spacing of the vibrations. To try a stop, it is placed, furnished with an objective, on the planchet, the small screen is lighted and the diapason made to vibrate. After focussing, the sensitized plate is substituted for the ground glass, and you loosen the movable frame. This, in falling, starts the stop, a flash is seen on the plate, and the experiment is ended. By development, we obtain the sinusoid in black on a white ground. If we find ten vibrations, the diapason giving one thousand per second, the exposure has been of  $\frac{10}{1000}$ , say  $\frac{1}{100}$ . We have made use of this method for more than two years, and it has enabled us to study in a complete manner the working of a number of stops, as well as the mode of action of the light on sensitive preparations. The first question that it has enabled us to resolve is the following: When any stop uncovers a lens, is it true that light acts from the very start? The question is an interesting one, for, if it be so, the graphic methods in which time is counted from the moment at which the lens is uncovered, are perfectly accurate; otherwise they are no longer applicable. Upon examination of the tracings obtained by our method (Fig. 5), we see at once that the impression left by the light appears very weak at the start, increases then in intensity, attains a maximum, then decreases, and gradually dies away. The spot at which the tracing commences to be visible indicates evidently the precise moment at which the light had acquired sufficient intensity to act. In reality, light enters the objective in a progressive and increasing manner, and in exact proportion to the surface of the lens uncovered by the shutter of the stop during its action; it disappears in the same manner. The interval which separates the moment at which the light acts, from that at which it has ceased to impress the sensitive surface, is given by our appliance with the greatest precision. This is what constitutes optical registry. If, as it is admitted by hypothesis in the graphic method, light acts from the time it can

penetrate into the apparatus until the moment of its disappearance, optical registry should have the same value as graphic registry. If it be not so, it is that a period exists in which, on the preparation that we use, light for want of density does not act. To furnish an undeniable proof of this operation, we operate as follows: We place on our registering frame and at the side of the plate, a strip of smoked glass. We fix by means of an articulated rod an electric chronograph, whose style presses on our strip of glass. When this last moves, carried by the registering appliance, the end of the style will trace a straight line by removing the black in its path; if at any time we send an electric current through our chronograph, the style attracted by the electromagnet will have a lateral displacement, and will have a signal enabling us to note the precise moment of an occurrence that we desire to observe. In our experiment, the chronograph will be utilized to note the precise moment at which light penetrates into the apparatus, and that at which it disappears. For this purpose we operate our stop so as to slowly uncover the lens up to the time at which the point is visible on the ground glass. We then give an electric contact, regulated in such a way that our chronograph acts at the precise moment at which light penetrates into the apparatus. We again establish another contact to give the moment of the disappearance of the luminous point. In this manner we obtain on our smoked glass two signs indicating the admission and disappearance of the light. This is optical registry, as has been said above. Should the light act as soon as it appears, up to the time of its disappearance, the optical tracing would have precisely the same length as the interval existing between the two signs. A simple inspection of the result obtained (Fig. 6) shows that it is not so; a very appreciable space of time has passed between the moment at which the light entered and that at which it acted, and also that it had ceased to impress before its disappearance. This delay in the impression is an evident proof that with the preparations now in use, light can only act when it has acquired a sufficient degree of intensity, and uncovered,

consequently, a certain quantity on the objective. The conclusion from what precedes is that the bases adopted by the graphic methods are purely arbitrary; we believe, therefore, that they cannot be maintained in practice. In a theoretical point of view, we can at once establish as a principle, that light, when we make an instantaneous

be no impression, and, consequently, no formation of the image. An examination of the tracings leave no doubt on this subject. We go still further, and believe that in the working of an identical stop, if the light be more intense, the initial point will be sooner obtained, and the number of recorded vibrations greater. If the light be

FIG. 10.



1. General view of the apparatus. 2. Portion of the sinusoid showing the number of vibrations corresponding to each of the tracings. 3. Reproduction of a portion of the negative cliché showing the unequal tracings left by the three points.

plate, should have a given intensity, an initial intensity, if we may be so allowed to speak, in order to act upon the sensitive preparation used. As long as light has not acquired the initial intensity, that is to say, as long as the objective has not been uncovered of the necessary quantity, there will

weaker, the reverse will be the case. In fact, if the objective be uncovered of a given quantity, a luminous source, equal to one thousand, for example, has obtained the desired initial intensity, a source one hundred times weaker will only give the same result if the objective is uncovered of a new



quantity, which will allow, by the admission of a greater quantity of rays, the obtaining of the necessary intensity to act.

From what has been said above the following law may be formulated: *For a constant working of a photographic stop, the time of action of the light on the sensitive preparation will vary according to the intensity itself of that light.* In a word "the duration of the action of the light will be in proportion to its intensity." Nothing is easier than to verify by experiment this law. We register the rapidity of any stop with our electric focus as the luminous source, and we obtain  $\frac{17}{10000}$  (Fig. 7). We make another registry, but placing a transparent screen so as to diminish the luminous intensity, now we only find  $\frac{13}{10000}$  (Fig. 8). The time of action of the light on the preparation is, therefore, diminished at the same time as the intensity. This is the evident proof of the accuracy of the law which has just been formulated. The consequences of such a result are important, inasmuch as they indicate, in the optical methods for the registry of stops, a cause of error which, *à priori*, it was difficult to suspect. In fact, if the intensity of the luminous source carries with it variations corresponding to the times of exposure, what confidence can be given to those methods which require the light of day to be used—such as those with a needle or the ball? For the reasons that we have just given, they can only give figures that cannot be compared with each other, since the intensity of the light varies according to the hour, the climate, the weather, etc. We desired to ascertain the value of this error, and to see if it really had some importance. For this purpose we had made a drop apparatus carrying a series of points which we photographed in their course (Fig. 10). The blade that carries these points receives a nickelled copper plate and coated with lampblack. A diapason of 1000 vibrations placed on top of our apparatus records its vibrations on the blackened plate. This is a modification of the ball process, but it allows far greater precision, since the rapidity of the fall is always registered at each experiment; moreover, it requires no calculation, it suffi-

ces to count the number of vibrations corresponding to the tracing left by the ball, and the result is obtained in thousandths of a second. In order to ascertain the differences in the registry obtained by the optical methods, according to the luminous intensity we fix on our movable blade three points of unequal brilliancy, reflecting, consequently, unequal quantities of light. We place our photographic camera, furnished with a stop, before our apparatus, and we operate at the moment at which the plate of the drop apparatus is in motion. We develop. Our points being carried by the same motion, are displaced exactly of the same quantity, but if, on account of the difference of their density, they have not impressed the plate at the same instant, we should obtain tracings of unequal lengths and corresponding to numbers equally different of thousandths of seconds. We have reproduced the cliché of this experiment which leaves not the least doubt; one of the points acted during  $\frac{24}{10000}$ , the second  $\frac{23}{10000}$ , the third during  $\frac{22}{10000}$  only. We might find here, possibly, by way of parenthesis, a photometric method by means of which it might be possible to judge of the intensity of a luminous source from the length of the tracing which it leaves. We are studying this question and will refer to it later. The experiment that we have just mentioned proves the influence of the luminous intensity on the recorded figure. If to-day, with a bright sun, we find a figure, to-morrow, perhaps even a few minutes after, we will find another figure should the sun be less bright.

The optical methods previously indicated, the light of day being a necessary element, do not, therefore, seem to possess the qualities of precision necessary to stand impartial criticism.

It would seem to result from the methods we have just described that the question of the measure of time of the exposure of a stop is one that cannot be solved. We believe that it is so. Nobody, in our opinion, can give actually the absolute value of the time of action of light obtained by means of any stop when making an instantaneous view, and we will now prove it. It is well, we think, that the public should know the

data of the problem, the obstacles, or even the impossibilities that it offers. Photography has, in a measure, left the domain of empiricism, and, in certain parts at least, it is possible to, and we should, apply to it the methods that are truly scientific. The method that we have proposed and that we consider as mixed, because it borrows the diapason of the graphic methods, and analyzes the action of light on the preparations as in the optical methods, avoids the difficulties of the other methods for the reason that we make use of a source of light which, if it be not absolute perfection, realizes nevertheless a sufficient practical regularity. We do not give it as impeachable, inasmuch as its full value will only be attained when use is made of a constant luminous source. But we here touch the question of a standard for light, a question which, as is well known, is far from being solved. It is sufficient to say that a method of photographic registry, to be perfect, must imply the use of a perfect standard for light. In regard to the recorded figure it will not be absolute but simply relative, and our law is always applicable. The more intense the source, the higher will be the figure for the same working of the stop. The figures found by our method with the electric light are, therefore, too great, because the light used in the reproduction of an instantaneous print is much weaker than the very brilliant image furnished by our point. There would, therefore, be a correction to make, a correction whose expression would be the fraction  $\frac{a}{b}$ ,  $a$  representing the intensity of our luminous source and  $b$  that of the light which acts on our plate when we make an instantaneous print. If, in this fraction  $a$  may be considered as known and sufficiently constant,  $b$  is and will be always variable. In order to have the figure absolutely true, it would be necessary with each print to ascertain the value of  $b$ , and to make the necessary correction. We might as well at once admit our inability and frankly do so instead of deceiving the public by figures that are entirely fanciful.

It might, moreover, be asked if the knowledge of the absolute value of the time of exposure of a stop is of any utility. We do

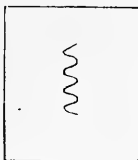
not think so. In presence of a result obtained with any apparatus whatsoever, what matters it to us to know if the light has lasted  $\frac{1}{100}$  or  $\frac{1}{50}$  of a second.

What is more important, is to be able to compare the rapidity of different stops one with the other, so as to be able to make a judicious choice from them according to the kind of work that we have to do. This classing, this comparison of different instruments is very necessary to know; with our method nothing is easier to obtain it. From the time at which all the measures shall have been made, with equal intensity of the luminous source, the figures found may be compared with absolute precision. It will be possible to ascertain very precisely, in a thousandths of a second, the differences in the rapidity. The differences between two instruments, ascertained by the method, with a given intensity, will still exist even should a different light be used. The time of action of the light will certainly vary, the ascertained figure also, but the difference of rapidity will always be constant between the two instruments. That is to say, an instrument more rapid than another by  $\frac{4}{100}$ , for example, will always be more rapid of this same quantity when we operate in the same conditions of intensity for one and for the other. These explanations being made, it is possible to give graduations for stops, but care must be taken to make known the intensity of the luminous source used; these figures alone should be admitted as having a real character of precision. We have experienced by our method, the rapidity of numerous stops, adopting for the luminous source the electric light furnished by a Duboscq regulator acted upon by a Gramme dynamo. What struck us in the figures found, is that they are much less than those that have been indicated. There are very few stops that give  $\frac{1}{100}$  of a second. The most rapid we have found, moreover made specially for our use by M. Dessoudix, gave  $\frac{1}{25}$ . At this degree of rapidity, the sensitive preparations seemed to have already reached their limit of sensibility when we wish to obtain instantaneous prints of the size 13 x 18, or 15 x 21 centimetres. Moreover, it is only possible to utilize this rapidity when having

a magnificent light and well lighted objects. It is evident, from what we have seen, that these figures are too great, and that in reality the time of exposure has certainly been much less. The instrument graduated  $\frac{1}{100}$  was perhaps exposed only  $\frac{1}{150}$ , or even less when we made a particular print, but nothing authorizes us to give one figure rather than another. In these conditions it is not possible to indicate any other figure than that given by the method. To resume these observations, we repeat that any method for measuring stops can have no scientific value if it be not based on the use of a constant light; that an absolute figure is never obtained, but rather a figure of comparison; that all the figures hitherto given do not present a sufficient character of precision, and that they should be controlled by a rational method. This has seemed to us necessary, and we hope that the amateurs of photography will thank us for having thrown light upon a question which certainly interests them.

To cite only a few examples, we will give the figures indicated by the manufacturers and, opposite, those found by our method. We do not give the name of any manufacturer, as the defects of the methods used may explain the differences found. It is for the reader to draw his own conclusions. In terminating we thought it might be interesting and instructive, alongside of the tracing given by a stop, to show the print obtained. With a stop of M. Dessoudeix whose measured rapidity was  $\frac{4}{125}$  say  $\frac{8}{1000}$  (Fig. 11), we have obtained divers prints

FIG. 11.



Measure of the time of exposure obtained with the stop for the photographs reproduced hereabove (S-1000 of a second).

which show that it is not necessary, to catch movements that are very quick, to have a rapidity as great as is asserted. It is well, however, not to forget that one must be a

very skilful operator in order to make a good cliché.

COMPARATIVE TABLE OF THE RAPIDITY OF STOPS.

Figures of the Manufacturer in Thousandths of a Second.		Figures found by the Method of M. Londe in Thousandths of a Second.	
$\frac{8}{1000}$	or $\frac{1}{125}$	$\frac{14}{1000}$	or $\frac{1}{70}$
$\frac{20}{1000}$	$\frac{1}{50}$	$\frac{25}{1000}$	$\frac{1}{40}$
$\frac{4}{1000}$	$\frac{1}{250}$	$\frac{10}{1000}$	$\frac{1}{100}$
$\frac{10}{1000}$	$\frac{1}{100}$	$\frac{40}{1000}$	$\frac{1}{25}$
$\frac{2}{1000}$	$\frac{1}{500}$	$\frac{10}{1000}$	$\frac{1}{100}$
$\frac{20}{1000}$	$\frac{1}{50}$	$\frac{28}{1000}$	$\frac{1}{35}$
$\frac{10}{1000}$	$\frac{1}{100}$	$\frac{25}{1000}$	$\frac{1}{40}$
$\frac{9}{1000}$	$\frac{1}{110}$	$\frac{14}{1000}$	$\frac{1}{70}$

—ALBERT LONDE, *La Nature*.

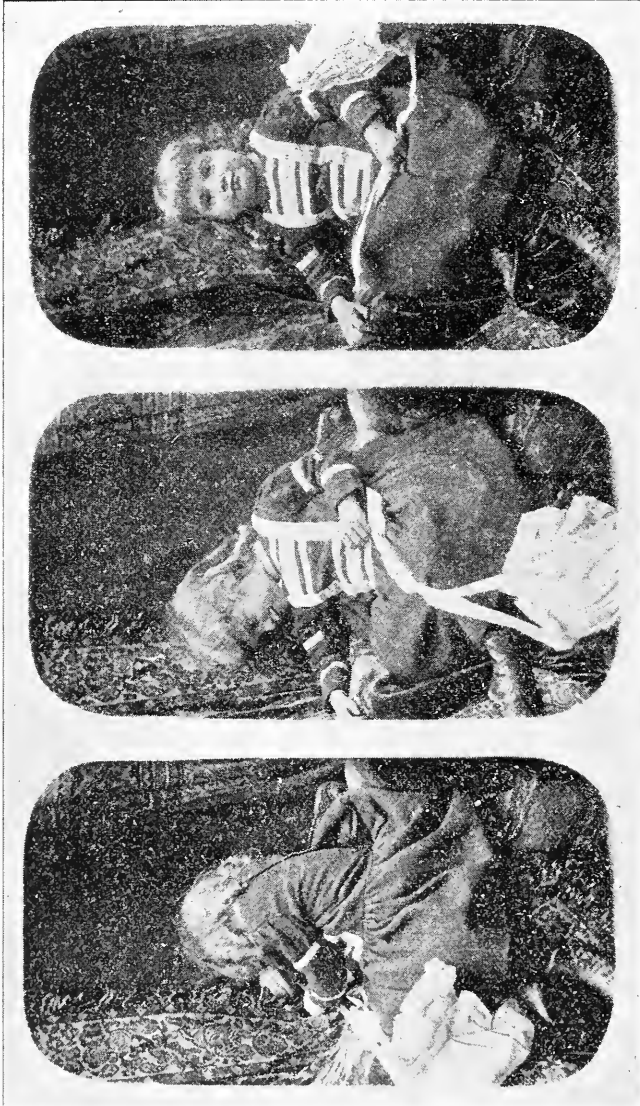
OUR PICTURE.

THE NEW TRIPLEX.

It is a long time since we have had any material departure from the stereotyped forms of pictures, namely, the cabinet and the carte-de-visite. Mr. Rockwood has this fall introduced a picture which has been the outcome, perhaps, of necessity (which is so often the mother of invention), rather than desire to strike out with an original style. He says that he has been constantly embarrassed by customers wanting various positions of a child in one dozen pictures and as constantly demurring to extra charges for the same. Of course there is a special interest and fascination attached to the various moods and expressions exhibited in children's pictures (even in their sombre or dissatisfied moments), which are of value to parents, so it occurred to Mr. Rockwood to try to cover this demand and avoid the irritation. He has just introduced what he has been pleased to term the "Triplex," giving three different poses on one cabinet card, virtually securing to the customer

three different pictures. Of course, he does not undertake to guarantee three pictures of equal interest, but it is very often the case that the various disasters that overtake the youthful sitter add interest to the result. In

brought the tiny lady to the second or "hopeful" condition, and a further bribery and cajoling produced the "happy" result of the third stage of the picture. A second and similar triplex is seen in our front em-



"Happy."

"Hopeful."

"Incorrigible."

one of the pictures herewith presented the young miss at first was "incorrigible" and turned her head away from the instrument determined not to be photographed. An encouraging word and a few promises

bellishment. Both are from Mr. Rockwood's negatives. Mr. Rockwood is also sure that he cannot do all the business in this line and will be very glad to have his friends in the profession take up this novelty.

In order to enable them to work intelligently, he has offered to send four pictures, mounted, and a description of his method of working, on the receipt of two dollars, certainly a very reasonable charge for the trouble and the beautiful examples which he will be sure to send out; or send a stamp, and he will send instructions free, without specimens. The success of Mr. Rockwood's new picture has been instantaneous and an advance in rates. His address, as is well known, is 17 Union Square, New York. If preferred, orders can be sent to this office and we will make a selection and send to our friends.

The reproductions from his "triplex" pictures which embellish our current issue, were made by the Ives process as worked by the Crosscup & West Engraving Co. (of which Mr. Ives is a member) Philadelphia.

### THE WORLD'S PHOTOGRAPHY FOCUSSED.

MONS. ARTHUR BATUT has published a book, in Paris, on composite photography. Prof. Stoddard has another interesting illustrated paper on the same subject in the November *Century*.

THE December *Century* will contain another one of Mr. Edward L. Wilson's illustrated Oriental articles—the second of the new series. The subject is "The Sea of Galilee."

OH, help! They are again discussing in the English journals, "What is an amateur?" We cannot, for the life of us, satisfy ourselves as to the reading of this query—is it *What* is an amateur? *What is* an amateur? *What is an* amateur? or, *What is an amateur?* Meanwhile, *poor* "amateur."

IN making a lantern slide in the camera, no light should reach the lens except that which passes through the negative. See *Wilson's Photographics*.

THE editor of the London *Amateur Photographer* has done a lot of kind work in soliciting prints and albums for the entertainment of the inmates of hospitals. Wont some of the members of our amateur socie-

ties make some of their negatives *pay* by doing similar work?

MR. T. C. HEFORTH has contributed two very interesting papers to *Chambers' Journal*, on the "American Rogues' Album," published last winter by Inspector Byrnes, of this city.

RESIDUES.—To recover the silver contained in the hyposulphite of soda baths, they are first treated with liver of sulphur. The precipitate obtained is dried, then submitted with iron filings to the action of great heat.

RETOUCHING.—To facilitate retouching, rub the parts of the negative to be retouched, with the following composition:

Gum Dammar . . . . .	6 parts.
Turpentine . . . . .	100 "

Or with:

Dextrine . . . . .	2 parts.
Very finely powdered resin . . . . .	1 part.

—*Photog. Rundschau*.

PHOTOGRAPHY OF THE FLORA OF COAL FORMATIONS.—M. Max Jaffe advises, in order to avoid the glitter of the carbon particles when making photographs of fossil plants, not to place the camera parallel with the plane of the objects to be reproduced. He places the ground-glass horizontally and vertically at twenty-two and a half degrees. There will naturally be a distortion of the image which will be seen in perspective. But this distortion is not very great, and besides, in most cases, it is geometrical drawings that are sought for.—*Photog. Correspondenz*.

A NEW PROCESS OF PROF. J. HÜSNIK.—The gelatine takes the place of the metal or the wood in the press. The process consists in treating the bichromatized gelatine film (impressioned under reticulated negatives) with certain substances, and by friction on the impressioned side. It furnishes plates finer and less costly than those made by the zincographic process, and can give as many as five thousand prints of great clearness. The process, itself, is not otherwise described.—*Photog. Correspondenz*.

**FIXING AND WASHING GELATINO-BROMIDE ENLARGEMENTS.**—Attention is here called to the care to be given to these operations. Before fixing, it is necessary to remove all traces of acid in the paper (which is ascertained by pressing on the print a strip of litmus paper), as otherwise, sulphuret would be formed in the hyposulphite bath. It is better not to use alkali, but to carefully wash. The prints are then to be placed in the hyposulphite at twenty per cent., and kept in motion for five minutes, then allowed to remain twenty minutes more in this bath. By operating as follows time will be gained in the washings: The print on coming from the hyposulphite is placed face downward on a plate, and strongly pressed with the squeegee, then put for a few minutes in water. It is again placed on another plate and pressed; the image is now reversed and carried to another plate and washed with the aid of a watering-pot. These operations repeated two or three times, assure the complete elimination of the hypo.

A VALUABLE kind of dry pocket glue is now made by combining twelve parts of good glue and five parts of sugar. The glue is boiled until it is entirely dissolved, the sugar is then put into the glue, and the mass is evaporated until it is found to be-

come hard on cooling. Lukewarm water melts it very readily, and the article proves excellent for use in causing paper to adhere firmly, cleanly, and without producing the slightest disagreeable odor.

**POSITIVE SEPIA PHOTOGRAPHIC PRINTS WITHOUT SILVER.**—1st. A certain quantity of sepia prepared in pastilles for aquarelle painting, is mixed with water to form a liquid just thick enough to flow from the vessel which contains it.

2d. Now take of this mixture one part; saturated solution of bichromate of potash, four parts; aqueous solution of gum arabic, four parts; mix and spread with a flat brush on the paper attached to cardboard; allow to absorb for two minutes so that no part of the coating becomes dry. Make the liquid penetrate into the paper until this last shows a uniform tint, brown or yellowish-gray; finish by drying with the aid of heat. Exposure may vary in full light from five to six minutes, whilst with diffused light the exposure may last an hour or two. On leaving the frame the print is plunged into slightly tepid water to develop it. Little by little the image cleans itself; when the desired effect is reached it is placed under a tap of cold water and dried, suspending it by a corner; when dry the print is finished. —*La Nature.*

## Editor's Table.

MR. J. H. SMITH of the firm of Smith & Pattison, Chicago, called at our office recently. He speaks enthusiastically of the large sales of the Duplex Rotary Polisher, and say, "We challenge the world to produce its equal." A new pattern has recently been introduced, starting in price with \$18.00 for a 10 inch. It is clipped of all fancy touches and does as good "business" as the higher priced ones. We expect presently to show our picture-lovers an example of polishing by this machine.

A STEADY SALE attends the Air-Brush. When the fine work done by it is examined by artists, they agree that this invention is as legitimate an artistic means as the brush and stump are.

Then they use it and bless the inventor for the new power given them. All who have large work to do and who must work in competition with present prices, will be wise to add the Air-Brush to their helps.

THE Christmas number of *Scribner's Magazine* will contain double the usual number of illustrations, every one of which has been made from a drawing by some well-known and expert artist. A few of those represented are Will W. Low, William Hole, A.R.S.A., R. Swain Gifford, Howard Pyle, E. H. Blashfield, J. W. Alexander, George Foster Barnes, F. Hopkinson Smith and F. S. Church. The price will remain the same as usual—25 cents.

WILSON'S *Quarter Century in Photography*; a collection of hints on practical photography, which form a complete text book of the art. By Edward L. Wilson, editor of the PHILADELPHIA PHOTOGRAPHER, and author of Wilson's *Photographic*s and *Photographic Mosaics*. Published by the author, 353 Broadway, New York.

Mr. Wilson's long experience in the art of which he writes, and his special training as an editor of the leading American magazine devoted to photography, give him special fitness for the preparation of a text book of this kind. A quarter of a century ago Mr. Wilson entered the business as an employé of Mr. F. Gutekunst, of this city, and a year afterward began the publication of the "Philadelphia Photographer." He has apparently thought of nothing else but photography during the last quarter century, and in this book condenses and puts in good shape all that he has learned on that subject from his own experiments, experience, and study, and from the contributions of the most eminent photographers of the world to his magazine. It may be said, without exaggeration, that the resultant book is a library in itself, sufficient to the needs of most photographers. Mr. Wilson is a practical man, and, though he treats the subject in a systematic way, does not overburden it with details that, however interesting to the chemist, are simply confusing to the working photographer. The book is full of useful hints and profusely annotated from the works of other authors. It is also liberally illustrated, and may safely be commended as the best single book for either the amateur or professional photographer that has yet appeared.—From Mr. George W. Childs' *Public Ledger*, Philadelphia.

MR. MALLIN'S "GULLS ON THE FLY."—We have received a new lot of Mr. Mallin's remarkable picture of sea gulls. It was taken at Southport, England, a watering place, where the proprietor of the hotel on the pier, feeds the gulls daily in order to attract them for the entertainment of the guests. "When the sky was full and the water covered" with the graceful, screaming creatures, our agile photographer exposed and caught a marvellous flock. The prints, whole plate size, will be sent by us on receipt of 50 cents for unmounted, and 75 cents for mounted ones. The picture is worthy of study. About 50 birds are caught.

THE HYATT CATALOGUE.—Mr. H. A. HYATT, St. Louis, Mo., has been laboring some months on his new catalogue. At last it is done and a

copy of the immense volume is before us. The pages are as large as the PHILADELPHIA PHOTOGRAPHER, and contains many woodcuts of cameras, apparatus, accessories, furniture, backgrounds, tools, shades, and what not useful and handy for the photographer. The literary part has been most carefully attended to. Every useless thing, used by many to "stuff" and swell their catalogues, has been clipped from this. It is in every way a model, and will be sent free to any applicant who focuses a camera. Mr. Hyatt wants every such person to have a copy. He describes several things of his own special manufacture, not in other catalogues. Mr. Hyatt is one of our best and most popular dealers.

*Photographic Mosaics* for 1888, will be issued soon after this reaches our readers. One hundred and forty-four pages for 50 cents, of such matter and by such authors as are named in the advertisement, ought surely to bring an early demand for *Mosaics*. We think we have printed enough to go around, but remember that the quick lens gets the passing view. See advertisement elsewhere.

A DUTCH CONTEMPORARY.—We herald with pleasure a photographic magazine from Holland. It is called the *Fotografische Maanblad* and is published at Amsterdam. It is the organ of the amateur society of that picturesque city, and is edited by Mr. J. J. KAMP, Suigel 334. It is modelled after the German magazines, and serves up an attractive variety of papers in its initial number; but since it calls ferrous oxalate developer "yzeroxalaat ontwikkeling," and a new developing bath "Een nieuw ontwikkelingsbad," our readers will pardon us for the very brief excerpts we shall make from our new contemporary (though we wish it well), until we have been over and "seen" our friend den Herr Kamp.

RAILROAD PICTURES WANTED.—Our success in securing cyclone pictures was so great that one of our leading magazines desires us to procure photographs of all objects of detailed interest pertaining to the railroad system of our great country, such as fine views, tunnels, viaducts, bridges, curves, ascents, switches, snow sheds, smash-ups, collisions, break-downs, snow-blockades—in fact, every freak and feature appertaining to a railroad or part of a one. Parties having such will oblige us by sending a list with prices, or lots on selection. Due credit will be given in every case where prints are used. Please be prompt.

MR. G. G. ROCKWOOD has favored us with some family groups made with magnesium light which have a picturesque charm of arrangement about them that cannot be obtained in the studio. All the home accessories are there and each person posed in the favorite chair. There are fine possibilities in this direction.

THE *Photographer's Indispensable Handbook*, compiled by Mr. WALTER D. WELFORD, and edited by Mr. HENRY STURMEY, is published by Messrs. LIFFE & SON, 98 Fleet St., E. C., London, at two shillings. It is a complete cyclopædia on the subject of apparatus, material, and processes. It contains about 400 pages, with illustrations of nearly everything in our line that can be illustrated, and is a very useful book both for the buyer and the dealer. It involved a lot of industrious work we know.

MR. LULU FARINI, Bridgeport, Conn., has favored us with a cabinet portrait of a lady with a white lace veil, made by magnesium light, which is excellent. Being a profile none of the objectionable features of magnesium lighting are shown. It is excellent.

MR. E. L. WILLIS, Milford, Mass., has favored us with an 8 x 10 portrait of the bust of a young miss that is an admirable example of carefully graded lighting, deft development, and good printing. "It was made," Mr. Willis writes, "as follows: First development of negative, no additional strengthening, used single light, no reflected. No 'retouch,' with the exception of two or three blemishes (freckles) on the face. Negative prints clean, quick, and soft. Made on 8 x 10 plate. We used a mask in printing as we wanted to see how it would look on the size mount you use for illustrations."

MR. HIRAM J. THOMPSON, 84 Wabash Avenue, Chicago, has issued the "Fall Supplement" to his great catalogue—16 pages full of information concerning recent novelties, including a big "bargain-list." Apparatus, appliances, and chemicals are all enumerated. Wilson's *Quarter Century* has almost a page devoted to it. Send for the "Fall Supplement."

AN EAR TRAP.—In these days of large development of ears on the human head, it has been a serious problem with Mr. Rockwood how to diminish their importance in ordinary portraiture. Often when the most desirable view of the face was secured, the obtrusive flap would

come into view, giving undue prominence to the same. Mr. Rockwood has, therefore, invented what he calls an "ear trap," by which we suppose he means that he first catches the ear and then ties it up.

Seriously, he has invented a little contrivance in the form of a clasp which is attached to the edge of the ear, passes round behind the head and holds the unruly member in a subordinate position to the head, and while it at first appears as a bit of Mr. Rockwood's practical humor, it is really an important adjunct to successful portraiture, in these days of abnormal aural development. He claims that Mr. Beecher was wrong in allowing the proposition that men might have descended from a monkey; that according to his belief a large proportion of the human race seem to have descended from the jackass.

CONTRIBUTIONS for the Jex Bardwell Fund are coming in. Please be prompt and liberal, friends.

LOOK to the rubber stamps and imprints used on your parcels. The wording in many cases, under the new law, causes double postage to be exacted.

THE Photographic Society of Philadelphia is a *Quarter Century* old November 25th.

TESTIMONY is being taken in Philadelphia in the burnisher suit of Messrs. Smith & Pattison *vs.* Hiram J. Thompson, for selling the Entrekin infringement.

PLATINOTYPE printing gains favor constantly. Some lovely work has been done for us recently by Messrs. WILLIS & CLEMENTS, Philadelphia—prints from our oriental negatives: Soft and velvety, and full of detail as are albumen prints, without the glare and gloss, they are particularly liked by artists. And they are absolutely permanent.

A FEW kind words for Wilson's *Quarter Century*.

"I commenced the business with Wilson's *Photographics*, I have been benefited many times more than the \$4.00 I paid for it. I think I will find *Quarter Century* more instructive."—N. M. WILCOX, Austin, Texas.

"I wish to convey to you my appreciation of your *Quarter Century*, which contains all that is worth knowing in modern photography."—Rev. W. H. BURBANK, author of *Printing Methods*, Newburgh, N. Y.







H. McMICHAEL,

A STUDY FAIR.

BUFFALO, N. Y.

THE  
**Philadelphia Photographer.**

EDITED BY EDWARD L. WILSON.

Vol. XXIV.

DECEMBER 3, 1887.

No. 311.

**TWENTY-FIVE TIMES.**

THIS is the twenty-fifth time we have written a New Year greeting to the photographic fraternity. We do not think any other person has served as editor and publisher of a photographic magazine for so long a time, though there are those who are older than we are who occupy the editorial chair.

We began early. We are young yet— younger than our art—and propose to celebrate the coming year by putting more zeal, more strength, and more good work into the service than we have yet been able to do.

If we live to close the year, we shall present something retrospective. At present we only propose to wish our readers, one and all, a most prosperous and *happy New Year*.

We have been almost half a year arranging our plans for an unprecedented volume of the PHILADELPHIA PHOTOGRAPHER, for 1888, and have many surprises on the way. Our chief aim and desire is to be *useful*. To this end we work. Do not put your hand in your pocket and clutch the \$5.00 that should come this way promptly, and say "Bah! there were lots of things in the last volume which did me no good, I will wait a while before I decide about renewing;" for you must know that the wants of our readers are not all alike, any more than their characters are all alike. We must cater for the wants of all and it is unfair for any one to *want it all!* We will give very one who will join with us for 1888, more than his money's worth. There will be:

New contributors, new foreign correspondents, translations of all the best points which occur in every country where a photographic magazine or society exists—and a few more; examples of the work of quite *fifty* photographers; specimens of many novel printing and reproductive processes; articles technical, æsthetic, and always educational and practical; new styles will be made known as quickly as they come up; finely illustrated papers on portraiture and on landscape photography will be frequent, and on all occasions the *interests* of the photographer who earns his daily bread by the camera shall be taken care of *first*.

This is only a faint showing of what we propose to develop out of our twenty-fifth year in the service of our art.

Now what have we a right to expect from you? A doubled subscription list? That you will endeavor to send us a new subscriber during December, with your own renewal? That you will at least send us the names of your co-workers who do not receive our magazine, that we may send them a sample copy?

Well, *no!* We hardly dare hope for that, although it *would* be pleasant to know that somebody had done something to help celebrate our *Quarter Centennial* and to make it more happy and more useful. But all we can ask is that we may be *promptly informed whether or not you desire our magazine* for 1888; that you consult our book-list and fill up the order-sheets as generously as you can and send them back to us.

### FACTS AND FANCIES.

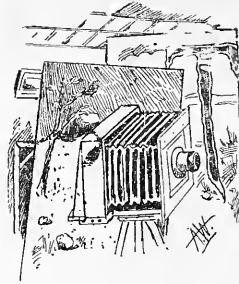
Do our readers, *veteran* especially, notice now much is made of photography nowadays—how different is public opinion from what it was in “those good old days” when we all wore our hands in our pockets for fear some one would see the stains and shun us because we were “only photographers?”

The press is said to “lead public opinion.” If so, it is doing its best now, for many of our leading newspapers have a regular “Photographic column;” and then they tell stories about us, joke and ogle us, and try to be familiar with us, until we of the “first generation” feel almost as if the milennium had come. We pull our hands from their hiding places, hoist them up, and hurrah!

Here are some examples of the pressure brought to bear upon the public (of course we can all focus on this change—we know it is so, because the press can now “make a dollar” on our account, and that lots of subscribers are interested):

For several weeks past the Sunday edition of the Philadelphia *Times* has devoted a whole page to the portraits of the “beautiful babies of the Quaker City.” About fifty photo-engravings of little children, singly, twins, and in groups, are reproduced from photographs, with names underneath, and appropriate comments. Very good studies for the poser they are too, and increase the interest in having pictures taken. What will the public say when Mr. Rockwood’s pretty triplex becomes better known?

The New York *Star* of November 6th devoted two columns to “Caught in the Camera.” The Art Editor, Mr. George W. Hows, had evidently interviewed “Ben” Gurney (now the “polite man” at Sarony’s, and son of J. B. Gurney, one of the first daguerrotypers of America), and “caught” his points. Some very interesting historical matter is given, together with photo-engravings, and biographies of “Ben,” C. D. Fredricks, Napoleon Sarony, William Kurtz, and J. M. Mora. A very readable, valuable article. Here are a few dots, which, by the courtesy of Mr. Hows, we are able to accompany by some of the bright illustrations which appeared in the *Star*:



HERE are more than 300 photographers in this city at the present time,” said “Ben” Gurney, in the course of a conversation the other day. “Vanity of vanities; all is vanity.” On the sole basis that people are fond of looking at themselves and having other people look at them, can it be understood how so many cameras are leveled every day in the year? Of course all of these 300 photographers are not amassing fortunes, but the majority of them are coining not a little cash from collodion. There are large and small men in the business. Men who take portraits of milliners and millionaires, of artists and actresses, of pastors and patriarchs, of babies and belles. Their prices vary with their work and the localities of their galleries, but the principle of production is the same, and and it is only by study and improvement of the principle that photography has become what it is to-day.”

We condense also a few biographical facts:

“Ben” Gurney, born the son of his father, who, a jeweler, as early as 1829 started a camera at 189 Broadway, New York. Mr.



Benjamin Gurney.

J. B. Gurney had to decide between his two vocations. The camera won, and he is yet at it. M. B. Brady, his old partner, is with Mr. Fredricks, at Eighth Street and Broadway.

C. D. Fredricks started soon after, and since then has focussed all over South America,

Spain, France, Cuba, and is now in this city. He was first a jewelry-case maker with E. Anthony & Co.



C. D. Fredricks.

Napoleon Sarony was born in Quebec, in 1821. He developed from a lithographic



Napoleon Sarony.

artist into a suave, smiling, superior poser, and improves yet.

William Kurtz, splendid, noble fellow, thorough artist and earnest, hard worker,



W. Kurtz.

was born in Darmstadt, Germany, in 1834, and has been in several wars besides the "price war." He arose from lithography to negative retouching and photo-coloring,

and from that to the proprietorship of one of the very first and best studios in America. We shall soon show our readers some of his latest results.

J. M. Mora was born in Cuba in 1849, studied his art in France, and for many



J. M. Mora.

years has been one of the most prosperous photographers in our city.



A corner of Sarony's studio.

Mr. Hows concludes his entertaining paper as follows:

"Much more might be written of photography in New York, its advancement, its improvement, its prosperity. It is worthy of note that American photographs are now

sold in Europe and that almost every mail brings orders for them to this country."

The Chicago *Inter-ocean* of October 30th devotes a column and a half to photography: "Its invention and early history—men who developed it and pushed it to success—the various processes of photography—its application to the industries and sciences—the amateur and the interest and excellence of his work—the best outfits." It gives a learned commentary; it begins with Baptista Porta, and ends with Mr. Gayton A. Douglass, a man whom the "entire West" knows and esteems—we mean Mr. Douglass. The *Inter-ocean* is a little jerky in its history, but is straight in its facts. We are indebted to the courtesy of the Art Editor for the photo-engravings which accompany our excerpts from the *Inter-ocean*. We are



glad to have it work with us, and will not remove a hair. Among other things this coming expert says:

"A well-known authority in a recent address to the Photographic Board of Trade, remarked: 'Fifty years since the discovery of writing by light have marked wonders that never entered the wildest fancies of the fathers that gave it to the world. The fantasy of Tiphane de la Roche in the eighteenth century became a reality in the succeeding one through Daguerre and his contemporaries, so to-day we stand guiding millions of capital, directing thousands of busy hands in the work of providing the requisites for the prosecution of the heliographic arts.'

"The sensitive plate of the photographer now, in a twinkling, a fraction of a second, will transfix the images of microscopic objects invisible to the eye. During the siege of Paris letters were photographically reduced for transmission by carrier pigeons, and the four mammoth pages of the London *Times* were reproduced on a sheet three by five inches. In Australia there have been

made single plates with the Titanic proportion of forty by sixty inches. In America, nothing in the way of landscape has surpassed Jackson's Western views on plates twenty-four inches square. Braun's auto-types, produced in Paris, have a world-wide reputation for duplicating the famous treasures of art. The large duplication of the Venus of Milo is probably the most notable in this line.



"One of the latest scientific fads in portraiture is the composite photograph, combining a number of pictures of a family or class to obtain their striking characteristics, as a type. In the United States, England, France, and Germany, photographic societies are well sustained in many of the large towns. The general popularity which photography has thus far attained is founded not only upon the recognized perfection with which it can perpetuate external forms, but upon the prospective advantages to be derived from it in many of the higher departments of science.

"Gayton A. Douglass, the head of the well-known photographic supply company on Wabash Avenue, one of the best authorities on photography in all its branches, has a vast and interesting fund of information relative to the development and perfection of the science. He has introduced it very successfully in medical and surgical practice at the hospitals; and states that it is signally successful in studying the mania of insanity and in photographing the muscular movements and contractions of patients. Dr. Warner has used it with valuable scientific results at the Kankakee Asylum. The study of the larynx and diseases of the throat have been much facilitated by the aid of a special camera.

"All the larger manufacturing corporations in this city are adopting photography for designing and otherwise aiding in their work; and it has grown to be an important adjunct in newspaper illustration."

And so much for Chicago.

And the last two illustrations are kindly supplied by the Art Editor of the *Inter-ocean*.

The *Public Ledger*, Philadelphia, has a much used column headed "The Camera." In this we discover that photography has a friend in the sanctum of that staid but recently enlarged newspaper, for all the current "matters of interest" are given. Once in a while it gathers points which we miss. We add a few such:

At the recent conversational meeting of the Photographic Society of Philadelphia, W. H. Walmsley exhibited a new shutter for instantaneous and time exposures. It is an English contrivance, and works entirely on pneumatic principles. By turning an indexed cap, exposures of one one-hundredth, one-half, one-second, etc., can be made. The "shutter" moves up and down in the diaphragm slot of the lens.

It is said that some excellent prints have been made on platinum paper five months old.

A good way to mark gelatine dry plates is to use a soft pencil and write upon the lower corner of the film.

The Photographic Society of Philadelphia is about to give up its present room at Fifteenth Street and South Penn Square, and a committee is charged with the duty of selecting new quarters.

Experiments with the new magnesium light, for portraits at night, are being made by many photographers, professional as well as amateur. The proportions are one part of gun cotton to two of the magnesium powder, and about fifteen grains of the latter is as small a quantity as one would care to use. In this connection, the following from Mr. John Carbutt will contain "crumbs of comfort" for those who have already tried and have not been altogether successful: "I am engaged now," writes Mr. Carbutt, "in the improving of an under-exposed negative, as may happen in the use of the new magnesium light; in fact it was

suggested to my mind by the first negative I took with the light at my house."

Dr. Wilson says encouragingly: "Exposure is largely a matter of inspiration, of feeling. There is no royal road to its proper attainment. You must learn how, just as you must acquire musical excellence or master a language. You must go through the experience and the plate-spoiling, with the disappointments incident thereto. Then it will come to you—to stay."

Amateurs who have suffered from the annoyances of mislaid stops, etc., will welcome this dodge, suggested by Coleman Sellers: "The morocco case containing the stops can be screwed fast to the camera frame, where it cannot be in the way and is always ready for use, not left at home or lost."

A question was asked at a recent meeting of the New York Society of Amateur Photographers if it made any difference whether the form of the aperture in a stop be regular in outline or not? President Walker replied that it "makes no appreciable difference whether there be a square hole or a round one."

Slides from Mr. Carbutt's negatives of W. B. Page and Tom Ray, taken on the 7th of October at the University Athletic Grounds, were shown before an audience in New York one evening last week, and were very much admired. The series comprises views of Mr. Page at the start, clearing the five-foot bar, the six-foot four-inch jump and touching ground. The three of Mr. Ray show him in three positions at the eleven-foot six-inch vault, all at the top of the pole, gathering up his legs, one before passing his legs over the bar, one showing his body half over and a third just letting go of the pole and dropping.

One of the latest trade novelties is a pair of pocket scales having a capacity of from one-half to twenty grains, and which are intended for the use of the photographer who uses his "pyro" dry. Much thanks to the *Ledger*.

FROM our Australian subscribers a long list of letters has come recently. From Mr. Wm. Cargill, the enterprising dealer, comes a fine order for *Quarter Century*, sent just as soon as the announcement of its birth

reached the "golden shore." From Messrs. Gibbs & Co., an order for over two hundred photographic books, assorted.

We wish we could get Australia prices. Here is the list of one of our patrons.

PRICE LIST.

*Bouloirs.*

	£	s.	d.
Per dozen . . . .	3	3	0
" half-dozen . . . .	2	0	0
" quarter-dozen . . . .	1	10	0

*Cabinets.*

Per dozen . . . .	2	0	0
" half-dozen . . . .	1	5	0
" quarter-dozen . . . .	0	17	6

*Cartes de Visite.*

Per dozen . . . .	1	0	0
" half-dozen . . . .	0	14	0
" quarter-dozen . . . .	0	10	0

*Lockets.*

5s. the first, 1s. every additional one.

Another one writes as follows :

"We have ordered some time ago, through your local agent here, Mr. Cargill, your new publication, viz., *Quarter Century in Photography*, and are impatiently awaiting its delivery. If it be but a near approach to your *Photographics* we anticipate for ourselves a rare treat in perusing it; and judging from the high encomiums already passed on the new publication, we feel sure we won't be disappointed. We appraise you as one of the highest, if not the very highest authority connected with the art; in any case, you are indubitably the most independent. We scarcely know how we could get on without the aid of you semi-monthly journal. We fear we would otherwise stand still, which, to use a Hibernianism, would but lead to us progressing backwards. We seldom come across anything in the PHILADELPHIA PHOTOGRAPHER to cavil at, but in the August 6th number, at page 469, we hold to a contrary opinion to that expressed by your correspondent, Mr. C. E. Brown, who, at the London Photographic Association, gave it as his belief that the quality of Australian work did not differ much from what was to be seen in England.

Without in any way wishing to speak on behalf of ourselves as photographers, we think that we can honestly join issue with Mr. Brown in asserting that his statement is not far out; we will gather together some prints of the everyday work obtained from a few of the leading photographers here, and send them to you. This we will do, not so much to prove ourselves right, but to get your honest criticism, which be what it may, we acknowledge will be just. Don't forget in judging of the merits of the photography, when the specimens reach you, that we have to lament the absence of such sterling plates as those of Carbutt, Cramer, or the Eagle Co.'s, and have to put up with "the best that can be got;" and it would seem of late that no two batches of English plates that reach this market are alike. We believe the fault to be imperfect packing; and as Mr. Carbutt has been the first in the field, as far as Australia is concerned, with his new Keystone Dry Plates (white label), we hope he will pay special attention to the packing of future consignments. There is a "big thing" in store for the maker, whoever he be, who will introduce a uniform, reliable, clean plate.

Thanking you for all the light you have afforded us in the past, and hopeful that you may be long spared to further instruct, interest, and entertain. We are

C. C. Co.

SYDNEY, September 29, 1887.

Such friendly sentiments we are glad enough to receive from readers so far away. We have responded with an earnest request for the specimens offered, and in due season our readers shall know all about them, and more of our obliging correspondent.

From another we receive kind words—this time from New Zealand. The writer sends us his trade circular. It shows us how business is "pushed" there, and we quote from it as follows:

"You will never again have such a chance. Mr. W. H. Macey, in recognition of the generous support accorded him during his long term of business in Marlborough, has determined on making special concessions for fourteen days only. He offers Two Pounds worth of excellent Photographs,



finished to the highest degree of perfection, for the small sum of Twenty Shillings; thus giving everyone a rare chance of obtaining one dozen cabinet portraits of themselves at a merely nominal cost. This opportunity can be availed of for fourteen days only, during which time patrons may secure tickets on payment of half-a-crown, the balance, seventeen shillings and sixpence, to be paid at time of sitting. Ticket-holders can be photographed on any day in the week during the next six months. Country patrons can obtain tickets on forwarding 2s. 6d. by post-office order, with stamp for reply. Children in special positions 2s. 6d. extra."

Many of our American patrons would be glad to receive such "nominal" prices.

From St. Johns, Newfoundland, Mr. S. H. Parsons writes:

"I inclose four dollars for *Quarter Century*. I am about to put in a new skylight, and want to know the latest style." Mr. Parsons has had a famous trip with the government officials far up in the north, and has returned with 400 lovely landscape negatives of many places never before cameragraphed. He promises to send us some of the first prints made. More anon.

Mr. H. P. Robinson, of Tunbridge Wells, Eng., the best *art* photographer alive, has sent us a platinum print of his last picture, "Carols." It has already taken two medals, but as we are printing a reduction of it for "our picture," we withhold our comments until we are ready. Mr. Robinson writes: "You still manage to keep up the quality of your PHOTOGRAPHER, which I read with great interest."

Prof. C. Piazzi Smyth, Astronomer Royal of Scotland, has favored us with one of his own personally made views for a future "Our Picture." It will astound some of our readers when they know its history.

Prof. Smyth looks with much interest upon the growth of orthochromatic photography, as he and his astronomical confreres expect much help in their spectrum photography in the direction of color-value plates. Prof. Smyth writes us, as follows:

"I have just received the following note

on orthochromatic photography in this country from Prof. Alexander Herschel.

"In the number for June last of the Society of Chemical Industry's Journal, there is a full account of a paper read by a lecturer on "Chemistry and Photography," in the Yorkshire College of Science at Leeds, Mr. C. H. Bothamley, to the Nottingham section of the Society (which he also repeated with lantern exhibitions of the capital experimental photographs that he mentions in it, at the Photographic Convention Meeting in Glasgow, where I saw and heard it), on orthochromatic photography with stained gelatine dry plates. The paper is a most astonishingly promising one for future true detection of light sensation of all colors in their natural appearances of brightness and darkness. Mr. Bothamley's results are so surprisingly successful, and the processes by which he obtained them are so fully and carefully tested and described, that his contribution to the subject forms almost a new discovery in their art for practical photographers, and we in England will be able to vie with, if not to excel, I hope, what American photographers have accomplished in making plates extremely sensitive to ordinary sized waves of light!"

WHY THE NECESSITY? One of our contemporaries, for whom we have too much sympathy and too much respect to name him, feeling, perhaps a little more than should be confessed, the influence of such magazines as are published largely for "personal advertisement" and the "push of our goods," has thought it his duty to issue the following circular. It did not come to us "confidentially," and we think the whole craft ought to not only read it, but seriously consider it. It is thus:

"To Photographic Merchants: In order that you may feel justified in pushing our interests equal to those of some great monopoly, we feel compelled to meet the recent "cut" in discounts of prices made by a firm who are able to distribute their publication free of charge, and do, to a great extent, as we are reliably informed. Our regular rates are, at all times be adhered to viz., \$ per year, \$ for six months. Our discount to you will be off on

all new subscriptions. Renewals to remain as now, cents on yearly, and cents on half yearly subscriptions.

We will ask you to kindly treat this circular as confidential, as we cannot afford to make this cut, but are compelled to do so by a powerful corporation who appear not willing that others should live."

The name and prices are withheld, but a hundred dealers can testify to its genuineness. The "more's the pity." Why should *any* photographic magazine, whose editor devotes his whole life and labor (and a great deal of it a "labor of love"), to the interests of photographers, be impelled to make an appeal to "photographic merchants" for aid in swelling his subscription lists? Why do not photographers send their money, with good, kind, encouraging words and new names *direct to the editor*, instead of through a dealer whom the editor is compelled to "divide" with? The "merchant" sells you a hundred things on which he makes a profit; the editor only one. Why not give the one who stands continually on the watch for you, *all* he earns? If his magazine is worth \$3 or \$5, send it all to him and *bless* him. We confess, that personally we have had an unusual share of consideration from our readers, and it cheers us greatly in our work. What we say now has been called forth by our esteemed contemporary. It cost him a heart-pang to issue that circular, and it won't do him much good either. The dealers, as a rule, do not *solicit* subscriptions for magazines. They *take* and *attend* to all that are offered them, but go to no great pains to bring knowledge and help to their patrons. *Do* they?

Why not then, good friends, now the season for renewing is near, give our hard-working contemporary all the benefit of his labor and put prompt funds into his hands to enable him to plan enterprises to *help you*? It is easier, we know, when you are ordering other articles from your dealer to add, "Oh, by the way, renew my subscription to the magazine and send *Mosaics* for 1888," than it is to send a money order or check to the editor, but is it fair and right? Please consider the thing calmly, justly and feelingly.

Don't let our contemporary make such

appeals, but stand by him—and by us too. There!

THE POET Armstrong must have been a comical photographer or else a kind hearted subscriber, for he once wrote "And throw a cruel sunshine on a fool."

A SECOND edition *Quarter Century in Photography* is in press. 500 copies have been ordered from England.

RENEWAL TIME IS COMING. — Please prevent us from sending you the following circular:

OFFICE OF THE PHILADELPHIA PHOTOGRAPHER,  
853 BROADWAY,

NEW YORK, Dec. 1887.

DEAR SUBSCRIBER:

When a subscription to my magazine ends, it perplexes me always to know which will nearest meet the wish of my subscriber — to stop sending or to continue. The former plan often offends and the latter does not always seem to please.

What is your pleasure respecting your own subscription?

If I receive no order to continue, or no remittance, by the time the wrappers must be directed for the coming issue, I will consider it my duty to both of us to *discontinue*, taking your silence as your sanction.

I regret losing a single subscriber, but my magazine is too costly to send without pay, or even a promise of pay.

May I not hope to hear from you, one way or the other?

Errors occur and will be gladly corrected if I am notified.

Faternally yours,  
EDWARD L. WILSON.

THE following account shows one more of the uses of our art in preserving what only too rapidly passes away:

Last night the body was photographed in the morgue by Mr. Gayton A. Douglass and Officer J. E. English, photographer of the Chicago police department. The ghastly experiment was witnessed by Chief Clerk Ware and Dr. G. W. Post, of the County Hospital, and C. Miller, the old morgue keeper. The necessary light was a recent

invention of Mr. Douglass, or rather an improvement upon the magnesium light which has heretofore been used in nocturnal photography. A tablespoonful of the powder was placed on the edge of the marble slab, about four feet from the corpse. That ghastly object had been propped up in a sitting posture. It was easily accomplished. Although death had taken place at least forty-eight hours before, the body was as limp and flexible as in life. The face, too, had not become white, and the whole appearance of the body was more like that of a man intoxicated to insensibility than of a corpse. When the two cameras had been properly focussed, Mr. Douglas lighted a wax taper and applied it to the powder. Instantly a flash of the most vivid brightness illuminated the morgue and expired as quickly. The light is said to last but the fiftieth part of a second. There was no report accompanying the explosion, simply a quick puff and dense cloud of yellow smoke, as of loose gunpowder ignited. Three times was the experiment tried and four negatives secured. Messrs. Douglass and English were highly pleased with the results. They declare that photographing can and will be done as successfully by the magnesium light as by the sun.

The body alluded to was that of the young man found concealed in a carriage, dead, on the railroad, near Chicago.

OUR art is now giving back to the other arts and professions some of the help which the camera drew from their ranks. Mr. George M. Bretz, of Pottsville, Pa., is an example, having decided to give part of his time and talent to sculpture. A local paper of that city comments upon his efforts as follows:

"Hundreds of people stopped in front of Mortimer's jewelry store window yesterday. They were not attracted by the usual display of glittering wares, but by a beautiful life-size plaster-of-Paris bust, the work of our well-known and talented fellow-townsmen, Mr. George M. Bretz. The piece of work is a marvel of perfection, and no one would believe that it is but an experimental effort. The correctness of the portrait is attested by the fact that the face was recognized at a

glance by several gentlemen who had seen the original. The bust was made from two photographs as a copy, first in clay, and then reproduced in plaster. A photograph taken of the plaster bust, shows such a striking resemblance to the original photographs that one would suppose them printed from the same negative. In working upon the bust, Mr. Bretz had not once the living face to work upon, so that the features and expression had to be produced solely from memory aided by his knowledge of the human face obtained by photography and crayon work. The wonderful correctness of his production and the manner in which it has been executed, stamps Mr. Bretz as a natural artist in a line in which he himself never dreamt that nature had bestowed upon him more than ordinary talent. The subject of his work is Mr. Edward D. Vantassel."

Mr. Bretz is one of the younger generation of photographers, and we rejoice to know of his growth in art.

THE Talcott mount, by the way, is becoming very popular among the New England galleries. Agents solicit the business by means of a card, like this:

"ARTIST PHOTOGRAPHER,

493 Washington St., Cor. Temple Place.

*The Largest and Finest Equipped Studio in the New England States.*

SPECIAL OFFER.

"In view of giving to the public more generally the benefit of our best and latest style of art work in photography, we issue a limited number of a special rate combination ticket, extraordinary, by which our patrons secure \$9.00 worth of best guaranteed work for \$4.50.

"This ticket entitles the holder of twelve cabinet photographs, one of them to be mounted by "Talcott's Patent Process," the picture being hermetically sealed, rendering it practically indestructible.

A. N. HARDY.

Not good after 188

Studio Price of Photo.	. . .	\$7.00
Talcott's Mount	. . .	2.00
Paid to Agent	. . .	.50
Due at time of Sitting	. . .	4.00

"This is not a club ticket, and is worth \$9.00 to the holder, and can be procured only of A. N. Merrill, Sole Agent.

"Agent not allowed to change verbally or otherwise the printed conditions of this check.

"By making an appointment in advance, sittings can be made without delay at any time, except between the dates of December 5th to 25th.

"One extra sitting will be allowed if the first is not satisfactory.

"Fifty cents extra charged for each additional negative ordered from.

"One dollar extra will be charged for children under five years of age.

"An extra charge for grouping.

"Cloudy or stormy weather will not affect the sittings.

"We particularly invite attention to our superbly colored pastel portraits, from \$25 to \$75, also to our superior work in crayon portraits, which are made in sizes varying in price from \$10 to \$40.

"Life-size camera portraits, \$15. Duplicates, \$5."

And we understand from Mr. Talcott that canvassers are doing splendidly all over New England. "West" wake up. For such orders Mr. Talcott makes special terms. A splendid holiday idea. See his advertisement.

## PHOTOGRAPHING THE HUMAN EYE.

BY ELMER STARR, M.D.,  
Buffalo, N. Y.

WHEN we consider the uses to which photography has been put in the various departments of science, and its applications in medicine, in making photographs of the "inside" of the body as well as its outside, it is not surprising that attempts have been made by its use to show the condition of the interior of the eye, but the obstacles in the way of success have been so great that heretofore little has been accomplished.

After considerable work in this direction I have succeeded in making some comparatively good photographs of the interior of the living human eye. The only other at-

tempts that have yielded anything but negative results are, I believe, those of Messrs. Jackman and Webster, in England. They succeeded in making pictures which show indistinctly the outline of one or two large vessels and the end of the optic nerve or "blind spot," as illustrated in this journal, issue of June 5, 1886.

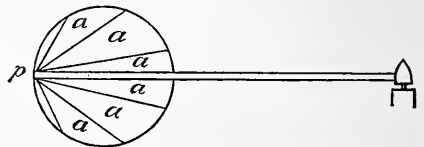
In considering some of the difficulties encountered in attempting to photograph the interior of the human eye, let us look at the first one met—that is, the difficulty in seeing the object we are to photograph.

In order to see any object that is not self-luminous, it is necessary that the object be illuminated by light from some other source and that the light then be reflected from the object to our eye. To see the inside of the eye then, rays of light must be reflected from its interior in such a direction as to enter our eye.

It has, of course, been known for an indefinite time that light must enter the eye, but for many years it was believed that all the light was absorbed by the choroidal and retinal pigments, and that none was reflected from the eye.

Helmholtz pointed out that the optic nerve, not being covered with pigment ought to reflect some light through the pupil. Yet it is known that the pupil remains quite black, even in broad daylight. Helmholtz showed that this blackness of the pupil depends on the optical law that the rays reflected from the eye must leave it in the same direction as that from which they entered—that is, toward the source of illumination. This is illustrated by Fig. 1,

FIG. 1.



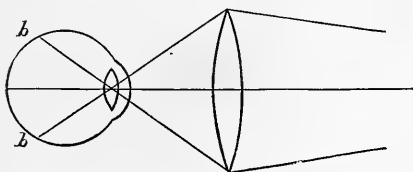
in which a spherical body has a point  $p$  on its interior, illuminated by rays which enter an opening in one side. All the reflected rays  $a$ , are cut off, except those that return through the opening toward the source of light, and to perceive these rays we must place our eye in their path.

From this it will be seen that, to get a view of the inside of a living eye we must have the light, our own eye, and the eye to be examined, all in a line. But it is evident that if we place our eye between the light and the eye to be examined, our head, not being transparent, will prevent the rays of light from reaching the eye to be illuminated. On the other hand, if we place our eye behind the light, the flame prevents us from perceiving the rays that are reflected back from the illuminated eye. If we could make a hole in the flame we could place our eye behind it and receive the reflected rays as they pass through.

Helmholtz solved the problem by using a mirror to reflect light into the eye, making a hole in the reflector instead of in the flame. By this means the reflector (which is virtually the source of illumination), the eye to be operated upon, and our own eye, can all be placed in a line. This arrangement is the ophthalmoscope, one of the most important instruments used in medicine.

When, by this means, a normal eye at rest is examined by another eye adjusted for parallel rays, it is only necessary that the examining eye be placed somewhere in the path of the rays leaving the illuminated eye to get a view of some point of its interior, and the nearer the two eyes are approached the more of the interior will there be visible. But the limits within which it is practicable to use this method are such that only a small part of the interior is visible at one time. We may increase the illumination and also the area illuminated, by placing a convex lens before the eye in such a position that the light is brought to a focus soon after entering the pupil, as shown in Fig. 2,

FIG. 2.

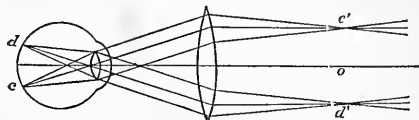


where it will be seen that the area between *b b* is illuminated.

This portion of the fundus, once illuminated, sends out rays in all directions just

as if they were generated in it. Bearing this in mind, let us see what happens to the reflected light. The dioptric system of the

FIG. 3.



normal eye at rest is such that all rays of light, reflected from a point on its inside, leave the eye parallel to each other. Take the point *c*, Fig. 3. Rays diverge from this in all directions, and, passing through lens and pupil, leave the eye and pass on as parallel rays until they meet the convex lens placed in front of the eye by which they are made to converge and again brought to a point at *c'*. Rays leaving *d* do the same thing, so that an inverted aerial image of the interior is formed at *c'*, *o*, *d'*; and we can look through the central hole in the mirror and see this image.

If now, we reflect that our eye is a camera in miniature, we will realize that we may substitute a camera for our eye behind the hole in the mirror and so get an image on our sensitive plate. This would seem an easy thing to do, but practically it is not so easy as it seems. In the first place, it is often difficult to get a satisfactory image that is not spoiled by reflections from the mirror and lens; it is impossible to get rid of these reflections entirely, but by patient and careful trial they may be so disposed as to do little harm. Then after we have secured a satisfactory image, a very slight motion of the eye under examination will spoil it all and necessitate a new adjustment of the apparatus. It is difficult for a person to hold the eye quiet enough to have it photographed; any movement during exposure would, of course, cause a blurring or doubling of the picture. In practice, it is found that few persons will hold the eye without movement more than five or six seconds, while it is brightly illuminated.

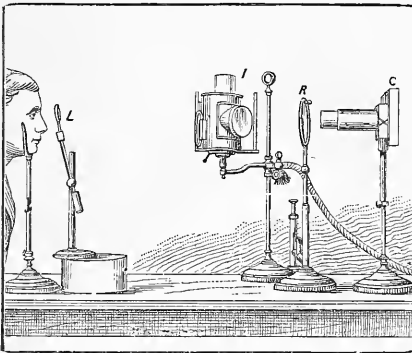
But if all these difficulties are overcome, there still remains another very serious obstacle. When we look at the inside of a human eye, by the method given, we see that it is of a bright red color, and when

we reflect that ordinary photographic plates are not sensitive to red light we realize that it is a difficult undertaking to make a photograph of such an object. This, more than anything else, has prevented the photographing of the interior of the human eye.

Believing that success in such an undertaking would depend largely upon improvements in the sensitive plate I began working with formulæ for making orthochromatic plates, as some of these were believed to be more sensitive to the less refrangible rays, at least the green and yellow, and I was finally able to prepare a plate with erythrosin that gave a fair picture with an exposure of eight to ten seconds, using an Argand gas-burner for light. I have also used cyanin for sensitizing plates, but as yet do not get so good results from it.

Following is a description of the apparatus I use. The person whose eye is to be photographed sits at the end of a table, with the chin resting in a support; about two inches in front of his eye is placed a convex lens *L*, of two-inch focus. About twenty-four inches from this is placed the reflector *R*. This is a concave mirror, four inches in diameter and twenty-inch focus, having a central opening one-half inch in diameter. Behind this opening is the camera *C*, with

FIG. 4.



a lens of four-inch focus. The light *I* is placed in front and at one side of the reflector. I usually place a glass tank containing a solution of alum in front of the light to absorb the heat rays.

After many different trials I decided upon the apparatus as described above as giving

best results. The picture that is made by this process is small, and when printing from the negative, enlargements are made, and for this purpose I use a microscope with two-inch objective

FIG. 5.



The accompanying picture is one of the best I have made, and is from a normal eye. The oval white spot in centre of picture is the end of the optic nerve as it enters the eye, and the dark, irregular lines running out from this spot are bloodvessels. One set—arteries—enter the eye with the optic nerve, and are distributed to the retina; the other set—veins—carry blood from the retina, and leave the eye with the optic nerve.

### PRINTING IN BLUE.

SOME time ago (PHILA. PHOTOG., June 5, 1886, page 322) I gave you my way of painting paper for the blue process. That article is all right, but since then I found out another factor which tells enormously in getting and keeping the sensitizing solution on the surface of the paper. In order to let you see what I found out let me give you the history:

The first lot of paper with which I had such very good success, I prepared in my dark-room in midwinter, having in use a coal-stove and the fire going day and night alike. The air is very dry in such rooms in winter, much more so than in hot summer.

Now, after proceeding as you have it, I manipulated the drying as follows: I took up the sheet by two corner loops, got close to the warm stove and moved it so that it

swung forward and backward about half a minute, laid it back on the table and took hold of the other two corners, opposite side, doing same as before; laid it down again and took other length of sheet, did same as before, and again changed sides; by this time it was perfectly dry and then cut into sizes and laid by. The painted side I always kept away from me and next to the pretty warm face of the stove, but, of course, did not let it come in contact with it. My object in manipulating in this way was to prevent the solution from collecting in streaks, and to have it dry in evenly, and this was my sole object. But what I actually did and which turns out to be the best part of the manipulation, I have learned since.

Later in the season, about June, I prepared another lot of blue paper; my stove was not in use then. I found two drachms of clear water per sheet rather plenty; one and a half drachms would, besides the filled brush, have been enough for wetting.

After getting through sensitizing, the sheets appeared rather more moist than with the stove and dry air in the room. To avoid letting the solution run into streaks I let them lie level a little while, and then laid them on two cords stretched about six to eight inches apart, with sensitized side up. They dried about in this position:



I cut them, etc., and I found on using them, that they were better than any I ever bought, but after all not near as good as the first lot dried by the stove.

The question was, why don't they give as fine, clear prints as the other lot?

What did I do different from the first lot?

Answer.—Nothing except the drying.

Now, can the drying affect the result?

The moment this question occurred to me I had the solution and answer to the question: It was yes, and immensely so.

What did I do in drying the first lot?

I pulled by my manipulation in drying, the water and moisture in the paper toward the side on which the chemicals lay, and hindered them from getting in and below the surface of the paper. In fact, by my manipulation in not getting the sheet on both sides at the same temperature, all, or

nearly all the evaporation took place on the painted side, and the whole force acted to get the chemicals on the surface of the paper. Such a condition, of course, must give better and clearer prints.

I guess, Mr. Wilson, you understand me now. I have made blue paper since, and drying near stove as before manipulated, have got the same perfect results. So much for this. This may do good for other processes if it is understood and intelligently done.

After I have my 'scopes done, I probably shall experiment more, especially with Obernetter's process; printing without the salts of silver fascinates me, it seems to give very fine and permanent results. By looking at little trial pictures two years old, half or wholly toned, and comparing them with the uranium and other similar processes, these seem to be far finer, cleaner, and more permanent also.

Last fall I sent you two landscape prints, nothing great, but I intended (what don't we all intend to do, and don't do it?) you to see them as illustrating the difference between the action of short and long focus lenses, and to speak to you about what a queer landscape the short focus lens will sometimes make to what it ought to be, and what is seen by the unaided eye. *You treated this splendidly in Quarter Century.* Some time or other I may have something to say about *capillary attraction*, how it acts on the fibres of paper, etc. But I will have to go back to my "old hobby" the microscope to make this plain. Once seen it will show photographers what power they have to overcome to get solutions or their contents out of films, etc.

I guess this is enough for this time. I wrote it only for you to see the facts about making blue printing paper, and how the process of drying the same can act. Use this for your ownself. Probably what I said was known to you already. Excuse me if I attempted to tell you an old story.

C. G. BUSCH.

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### CARBON PHOTO-MINIATURE.

AMONG the divers processes of photo-miniature there are some but rarely mentioned, and which, nevertheless, are capable of giv-

ing the best results. Instead of making use of prints made on albumenized paper which forces us to use varnishes which become yellow, and whose transparence is not always sufficient, or else to remove with the scraper all the paper which serves as a support to the albumen print, it is better to employ the carbon process, which gives us a pellicular image having the desired normal tint, and on the back of which it is easy to apply the color. But it is best to not operate in this way but to paint a kind of rough model upon which will be transferred later on the carbon print. The carbon print should be made in double; one of the two developed on glass will serve to verify the work of preparation of the colored under surface; the other, developed on double transfer paper, will be transferred to the colored under surface as soon as this last is terminated. To operate with precision, it is necessary to make the line of the model from the print developed on glass, and to cut the carbon paper always in the same direction. This line serves as a guide; as the divers colors are used the impression on glass is utilized to ascertain if they have the desired tone. When the colored under surface is terminated it is covered with a coating of normal collodion, which infusions the colors so as to render them insoluble in water. The transfer of the carbon print previously covered with gelatine, may now be made without fear of injuring the polychrome surface.

A good feature of this process is, that a series of prints as complete as possible may be made by it. Besides the carbon process yields prints giving the drawing and the half tints, of the desired tones to harmonize with the colors. Thanks to photography, which is nothing more than a mechanical printing of carbon prints, it is possible to produce industrially a great number of polychrome prints, care being taken to print the Woodburytype images on paper coated with an isolating varnish, stearine dissolved with the aid of heat in alcohol, for example.

It is surprising that this simple and complete photo-mimature process should be so little practised.—*Journal de l'Industrie Photographique.*

[Translated for *The Philadelphia Photographer.*]

### INSTANTANEOUS PHOTOGRAPHY, AND SCREENS ABSOLUTELY BLACK.

To make a series of photographs of an object in motion, this object is placed before a dark screen, in order that no other luminous body may act on the plate. Mr. E. J. Marey, who is now engaged in making at Paris such interesting investigations on walking and flying, has shown that this background should be *absolutely* black: it is sufficient that the background give out a small quantity of light, however feeble, for this emission, which is repeated at each opening of the rotary stop, to give a sum of light sufficiently great to impression the plate and veil the prints. Let us see what means we have at our disposal to realize this perfectly black screen. The problem of obtaining an *absolute* black was solved by Mr. Chevreul. It appears from the investigations of this illustrious scientist that no coloring substance applied to a surface can render it absolutely incapable of reflecting the light. If paper be blackened its surface will always emit rays which can act on the sensitive plate, even though the eye should not perceive any. It is the same with black silk and black velvet. This last, however, is what comes nearest to absolute black. Everyone has remarked that the brilliancy of colors is much more intense on velvet than on any other substance; it is, because, owing to the height of the pile, light undergoes repeated reflections which have for result the freeing of the rays of the predominating color from all those of another shade. It is easy to observe that a piece of black velvet placed upon silk or black cloth will always be blacker than they are. Still black velvet does not represent absolute black. Black is the absence of light; therefore, the best manner of obtaining it is to exclude the light. Here is the way Mr. Chevreul proceeds: He pierces a hole in the end of a box whose sides are covered in the interior, with a black substance. The hole should not be too large, and its dimension should not exceed a tenth of its surface. If black velvet be used to line the inside of the box, and if the sun cannot penetrate by the



opening, the image of this opening may be considered absolutely black. The blackest velvet placed alongside of the opening does not appear as black as it. This fact was proved recently by a member of the Amateur Photographic Society of New York, by means of the following experiment: The inside of a pasteboard box is lined with black silk, and in the lid, which is also lined on the inside with black silk, or coated with black paint, a hole is made of any shape whatever. The cover being in its place, the box is placed so as to receive the light on one side, and thus prevent any of the rays from reaching the inside. The opening now shows in black, on a background, which seen alone, might pass for absolute black. The phenomenon appears with much more sharpness when the box is photographed. The plate is in no way affected by the opening, whilst the rest of the lid is sensibly impressed, and we obtain a negative in which the little impression appears in white on a slightly shaded background. To Mr. Chevreul reverts the honor of having made it possible to take photographs of animals in the divers phases of their motions—this new branch of the art placed by Mr. Marey at the service of physiology. Great difficulties of execution are met, however, when we wish to have an absolutely black screen of large size, before which a man, or a tall animal, has to pass. For his experiments Mr. Marey was obliged to construct a shed having as much as eleven yards in depth, and as many in height. This shed is lined in the inside with black velvet, and is pierced with a large opening, the height of which is reduced to what is strictly necessary, by means of movable frames. In order that the floor of this gigantic screen should reflect inside as little light as possible, it would be necessary to excavate the ground to such a depth that solar light could never reach it. Mr. Marey contents himself with covering the ground with bitumen upon which he places strips of black velvet at the moment of operating. He is also careful to frequently wet the ground near the black opening, so that the particles of dust raised by the feet of the walker, or by the wind of the wings of a bird, may not veil the images by the light which they emit. All these pre-

cautions were necessary to obtain a successful method for making photographs of rapid motion. It has been possible for Mr. Marey, with the means he has at his disposal, to reduce the time of exposure for each image to  $\frac{1}{100}$  of a second, and he thinks he can still further reduce it. This diminution of the time of exposure, in connection with the perfect obscurity of the background, increases in a most signal manner the sharpness of the prints.—*Le Monde de la Science et de L'Industrie.*

### DEVELOPMENT OF PLATINOTYPES WITH COLD OXALATE SOLUTIONS.

IN all directions for the development of platinotypes, you find it prescribed, that the latter should be drawn through a hot, impregnated, saturated oxalate solution (about 80–100° C. Some time ago we tried to develop some platinotypes (on paper of the Platinotype Company in London) which had by some negligence been too much overcopied, in cold oxalate solution (12–16° C.), and met with such extraordinary success, that we might advise, out of regard to convenience, that platinotypes be copied too strongly, and then developed as mentioned. The tone and brilliancy of the picture are as good, if not better, than in the hot development, at all events, very strongly printed pictures can be kept better by the use of cold oxalate solution.

It is not sufficient in the cold development, to simply draw the plate through, but the picture must be allowed to lie in solution, where, as in the development of a negative, it comes out gradually. Baron A. Liebig has informed us, that he has made the same observation; moreover, he has also found, that the degree of concentration of the oxalate solution is of great importance in regulating the development. He has found that copies, that would otherwise have been lost, have been preserved by strongly diluting the cold oxalate solution. This gentleman also declares that cold development and dilution of the oxalate solution is the simplest method for obtaining excellent pictures with old, spoiled platinotype paper without copying over.

A normal copy on otherwise unserviceable platino paper was cut into two parts, and the one developed according to the usual receipt—hot, the other cold in diluted solution. The first part gave a gray, monotonous color, the latter a strong picture with brilliant whites.

We recommend amateurs, who work with platino paper, to put to the proof the prescribed experiment here mentioned.—*Rundschau*.

### PRACTICAL POINTS.

**MOISTURE-PROOF GLUE.**—Dissolve 16 ounces of glue in 3 pints of skim milk, and if a stronger glue be wanted add powdered lime.

For marine glue, heat moderately in mixture of India-rubber (one part by weight), mineral naphtha or tar (two parts), and add twenty parts of lac in powder. To use this glue it must be heated to a temperature of 120° C.—*Revue Industrielle*.

**DIRECT PRINTING OF PHOTOGRAPHS WITH FATTY INKS.**—To make a direct use of a sheet of gelatine as a printing plate, a sheet of gelatinized parchment paper, similar to that used for autcopy in black, is plunged into a sensitizing bath of bichromate of potash, perchloride of iron, or nitrate of uranium; it is then allowed to dry in obscurity after having been applied to a talced plate so that the gelatine rests on the plate. This sensitized sheet is now placed in a photographic frame on the negative cliché to be reproduced and exposed to diffused light. The light having impressed the bichromatized gelatine of the paper, it is soaked off in water, and it presents in raised and sunken lines the image to be printed. To use this plate a variable degree of humidity is imparted to it according to the reliefs which we wish to obtain, and it is stretched on a special frame where it serves directly as a printing plate.—*Industrie Photographique*.

**REPRODUCTION OF ENGRAVINGS AND AUTOGRAPHS BY PHOTOGRAPHY.**—Here is a simple process within reach of all to reproduce an old print, an autograph, a letter,

a copy even of a letter, which is often very useful in business. It suffices to place the letter or engraving to be reproduced on a sheet of sensitized paper, and expose to the sun; to obtain the close contact of the sheets a plate of glass may be placed over them. All that remains now to be done is to fix the print.—*La Nature*.

**COLORED-GLASS FOR DARK ROOMS.**—M. Scola has made a certain number of experiments with the substances to be used for coating the panes of glass in the sashes of dark rooms, and he gives the following formulae:

Water . . .	100 c.c.
	(3 fl.oz. 3 drachms.)
Gelatine . . .	5 grammes.
	(77 grains.)
Nitrate of silver . . .	1 gramme.
	(15 grains.)

The glass coated with this mixture acquires a reddish-brown tint after having been exposed some time to the light. Wash carefully to eliminate all traces of the nitrate of silver, and we thus obtain a surface through which the actinic rays do not pass. The color becomes more intense when the proportion of nitrate of silver is increased to three or four grammes. This glass may also be used for dark lanterns.—*Association Belge de Photographie*.

**USE OF MERCURY IN COLORED FLAMES.**—Many of the substances used in pyrotechny have been utilized at different times by photographers. The whiteness of the flames given by arsenic, zinc, magnesium, is known to all. But it is not so generally known that mercury is capable of greatly adding to the effect of pyrotechnics. It is under the form of calomel (protochloride of mercury), that it is used in the mixtures so as to add to the luminous intensity, and to change the green color produced by the compounds of copper into a blue color. If sulphate of copper be made to burn in a similar mixture it yields a *green* light; but if some calomel be added to it the sulphate of copper produces in burning a blue color. This last fact might find some applications in photography.

**VEGETABLE GELATINE.**—Experiments have been made to substitute for gelatine the gelatinous substance obtained from sea plants, and which is named *algine*; similar experiments were also made with the vegetable gelatine obtained from Iceland moss. The result is, that for photographic use none of these vegetable substances can take the place of animal gelatine. In this connection we may state that, according to Mr. Martens, that paper sized by means of animal gelatine is much superior in every respect to paper that has been sized by means of vegetable gelatine. It is also stronger. The use of rosin as a sizing agent, does not give the same strength as animal gelatine. With this last, two sizings yield the maximum of resistance; beyond this, the paper acquires no further strength. The introduction of mineral matters into the pulp, of whatever nature soever, has always a tendency to diminish the resisting force of the paper. But papers, the pulp of which has been thus treated, may be materially improved in this connection by two sizings with animal gelatine. Calendering diminishes sensibly the thickness of the paper without affecting the weight of the sheets.—DR. PHIPSON.

**WASHING THE PRINTS WITH THE AID OF A LITTLE IODINE.**—At one of our photographic societies Mr. Oakley announced that he was accustomed to use iodine to get rid of the last traces of hyposulphite in paper prints. His manner of operating is very simple: To the washing water he adds a small quantity of tincture of iodine which gives to the back of the print a slight bluish tint; he then continues the washing until this tint has disappeared. We know that in presence of hyposulphite of soda, the blue tint (which is due to the action of iodine on the starch in the paper) cannot be produced.—*Paris Moniteur*.

**PHOTOGRAPHY BY MOONLIGHT.**—The editor of one of our photographic journals asserts that with extra sensitive plates, and a potash developer, he obtained very passable photographs in an exposure of from seven to ten minutes to the light of the moon. Generally, with a full moon, it is necessary to expose for seven hours to obtain

a good reproduction of a landscape thus lighted.

**MODIFIED FORMULA OF THE NORMAL DEVELOPER.**—Mr. J. Traill Taylor asserts that the modified formula of Mr. Eastman is all that is necessary for plates and pellicular paper, and from his own experience here is the modified formula:

## No. 1.

Boiling water . . .	32	parts.
Sulphite of soda . . .	6	“
Citric acid . . .	0.15	“
(or sufficient to render the liquid very slightly acid.)		
Pyrogallic acid . . .	1	part.

## No. 2.

Boiling water, . . .	32	parts.
Carbonate of soda . . .	3	“
Carbonate of potash . . .	1	part.

Take 1 fluidounce of No. 1, 1 fluidounce of No. 2, and an equal volume of water to obtain the normal developer. Mr. Taylor, however, prefers using more water and leaving the plates a longer time in the liquid.

**ARTIFICIAL SCREEN FOR FOCUSING.**—An artificial screen for focussing is described by Mr. Chapman Jones. It is produced by exposing an ordinary dry plate for a rather short time, then developing it uniformly and until it acquires a sufficient gray tint; and finally fixing and drying. In this way, says the author, we obtain the desired opacity without the irregularity of the surface often remarked on the ground-glass, especially if it be examined under considerable enlargement. He adds, also, that a very good screen for focussing, and which shows no granulation on the surface, is obtained by producing the red fog on a gelatino-bromide plate. This is easily done by applying to it a ferrous citrate developer made alkaline by means of ammonia, which is afterwards fixed in the ordinary manner.

UNDER the head of “Questions and Answers,” in the *Photographische Mittheilungen*, is the following:

Are the Azalin plates that can be bought, suitable for taking landscapes also?

(The bought Azalin plates, which require

a yellow disk, are, of course, in connection with this, fifteen times less sensitive than the usual ordinary plates. But that very excellent results in landscapes can be obtained thereby, Schlitzberger in Bielefeld, Goepel in Witten, and others, have, for the last two years, conclusively shown by their exceedingly fine pictures.)

Another question is asked in reference to the yellow disk and eosin-silver plates. The inquirer sends two pictures taken with these plates, but one made with, and the other without a yellow disk. He thinks, himself, that the latter is decidedly the better, and asks the opinion of the editor, who answers in this wise:

We do not, as a rule, use a yellow disk with eosin-silver plates in taking landscapes—in portraits, though, it is necessary, in case the picture contains much blue.

We have, also, in landscapes, heightened the color-effect considerably with the yellow disk—that is, in case of a clear blue sky without aerial perspective, at noon-time. We use a looking-glass covered with aurantia-collodium (2 pro mille to a thousand); Hurantia will do. However, such cases are, with us, not the rule, but the exception.

#### PHOTOGRAPHERS' PASTE.—

Water . . . . .	900 parts.
Glycerine . . . . .	100 "
Starch . . . . .	100 "

Dissolve with the aid of heat. Cardboard does not cockle when this paste is used.

### SOME EASY METHODS OF TESTING PHOTOGRAPHIC LENSES.\*

BY HENRY H. TURNER.

THE question, "How to test a photographic lens?" is fast becoming one of considerable popular importance and is worthy of brief consideration at this time. It is the opinion of the writer that nothing can be more fallacious than to suppose a correct estimate can be made of the optical correction of a photographic lens by examining

pictures made with it. There are so many elements entering into the make-up of the finished picture, for which the lens is in no wise responsible, but which, if the result is not entirely satisfactory, can be laid at its door, that, to be absolutely certain of the quality of a lens, some other method must be employed. It is undoubtedly true, if a picture be made which is, in all its parts, clear cut and satisfactory, that the lens used was probably a good one. But, on the other hand, an equally good lens might be made to yield an extremely poor picture and the fault be entirely in the manipulation. For reasons quite similar it is not easy to get an accurate idea of the definition of a lens by judging of the image on the ground-glass. Because, of necessity, the surface of the ground-glass is rough and this must, in a measure, prevent the production of a clear cut, sharp image. The covering capacity can, of course, best be judged of by the image on the ground-glass.

Probably the most satisfactory and, at the same time, the easiest way of testing a photographic lens for definition is to use an eye-piece, by which means you virtually have a telescope. The *modus operandi* is quite simple. As good an object as can be employed for this test is clear, black printing on white paper. It would be better if such could be secured with several sizes of type. This paper should be placed upon the wall, or suspended in some other way, where it will be perfectly flat and be well and evenly illuminated. The lens should be mounted in the regular way on the size of camera with which it is designed to work. Now instead of letting the image form upon the ground-glass remove that entirely and, with an ordinary microscope eye-piece, say of one inch power, mounted so it can be used in every part of the field, you get the best possible test for definition. The eye-piece can be mounted by taking a strip of wood, one-fourth of an inch thick, two inches wide and about twice as long as the longest dimensions of the back of the camera box. In the centre of this strip of wood a round hole should be made large enough to allow the eye-piece to set in just as it does in the microscope tube. By this means the eye-piece can readily be placed in any part of

\* Read at the meeting of the American Society of Microscopists held in Pittsburg, Pa., August 30 and 31, and September 1 and 2, 1887.

the field and always be kept in the same plane while, with the rack and pinion motion of the camera, the object can be focussed and the definition of a lens tested to a nicety. In a similar way the color correction can also be tested but we cannot enter upon that subject at this time.

Right here it is necessary to take into consideration some of the various styles of photographic lenses which are made for many specific purposes, but in which, after all the *genera*, if we may use that term in this connection, are extremely limited as, leaving single lenses out of the question, they may be divided into three great classes; viz., the "portrait," the "rectilinear," or "symmetrical," and the "wide-angle." Of course many other lenses are made differing from these somewhat in get-up, but these three classes embrace ninety-nine hundredths of all the lenses made. Of the first classification, the "portrait," and the last, the "wide-angle," but little need be said. The former, although still manufactured, is a thing of the past. Its knell was sounded with the introduction of the dry plate. The wide-angle lens at best is a make-shift and should never be used if a lens of what we will call normal focal length will do the work. The reasons for this are so obvious as to need no explanation. This leaves us the great class of so-called symmetrical lenses which has its prototype in the aplanatic lens of Steinheil. Every lens of this description, no matter by whom it is made, is a copy of the Steinheil. When Steinheil invented the symmetrical lens he published his formula to the world, giving a complete description of the glass necessary to make the lens, and, to a man, with but one exception, the opticians have copied it. It is called "symmetrical" from the fact that the front and back combinations are alike. This is mere geometrical symmetry; it has *optical* symmetry only when used in making a picture of the actual size of the object at which time the sensitive plate and the object are at equal distances from the equivalent plane. Then everything is in perfect symmetry but at no other time. Hence, the term "symmetrical" means very little when applied to this class of lens. The true symmetrical lens is the one having

*optical* symmetry—*i. e.*, when the front and back combinations take equal parts in the production of the picture, which is not the case when the front and back systems are alike but the distances of object and plate unlike. With the optically symmetrical lens symmetry of action is obtained which is of vastly more importance than mere geometric symmetry.

The common and perhaps most glaring defect of the so-called symmetrical lens is astigmatism and it is very perceptible in all lenses made after that plan. Its presence can easily be detected by the following simple method: Take two dark-colored strings, or black would be preferable, and place them at right-angles with each other across the centre of a window pane, selecting one which has a well illuminated background. The lens to be tested should be mounted upon a camera of the size with which it is designed to work and placed at a proper distance, say ten or twelve feet, from the window. Adjust it so as to have the image of the cross, formed by the strings upon the edge of the ground-glass. No attention need be paid to the centre of the plate as it would be a poor lens indeed that was not cut well in the centre. But, simply taking the edge of the field into consideration, it will be found that the two strings cannot be focussed sharp at the same time. In fact there is a great difference in the focal planes at which the lens will give a sharp image of the vertical and horizontal strings. The writer has tested a number of lenses for this defect and never yet failed to find it. With one lens, an 8 x 10 of a celebrated English make, the difference between the focal plane of the two strings was seven-sixteenths of an inch. In another, a 5 x 8 also of European make, and owned by a western gentleman well-known in scientific circles, when tested on a 5 x 7 plate showed a difference of one-fourth of an inch. This being a 5 x 8 lens and only a 5 x 7 ground-glass made the conditions considerably in favor of the lens. With this fact of astigmatism established it can easily be understood that a lens having it to so great an extent as to prevent two lines at right angles being cut sharp simultaneously cannot cut any object sharp at the edge of the

plate. This test is, as all others should be, made with the full opening of the lens and, while the introduction of a diaphragm will reduce the defect, that is all it will do, as no diaphragm entirely corrects any error.

Another error of the correction of photographic lenses is the discrepancy between the visual and actinic *foci*. All photographic lenses have to be carefully corrected in this respect or else the picture on the sensitive plate will not be sharp on the special objects which were focussed sharp on the ground-glass. To test for this defect place some printed matter upon the wall, the same object as was used to test definition will do. Here it will be necessary, however to make a negative, hence, the greatest care must be taken in manipulation. Place the camera in position, with the lens mounted in the regular way, and select one word on the paper, the image of which comes in the centre of the ground plate, focus this one word sharp. Understand, this test has nothing to do with covering power or flatness of field; focus only on the one word and be sure that it is absolutely sharp. Now insert the plate and make the exposure, again using the full opening of the lens. If, after developing, the one word comes out sharp which was focussed sharp on the ground-glass, the visual and chemical *foci* coincide. But, on the other hand, if no part of the negative is sharp the chemical focus is shorter than the visual, and the opposite is the case—that is, the chemical focus is longer than the visual, if, instead of having the one word sharp you have a zone or ring of sharpness around the centre of the plate and the central word as well as the extremities are out of focus. Care must be taken in making this test that the plane of the ground-glass is the same as that of the sensitive plate when in the holder.

No especial tests need be made for depth of focus as that will always be found to be in inverse proportion to the size of stop used.

One of the most difficult things to overcome in the correction of a photographic lens is spherical aberration and, at the same time, this is one of the most, if not the most disastrous fault to be found in any lens. Its presence always prevents sharp-

ness, and, if present to any great degree, renders a lens worthless. When present to this degree it can be detected by simply holding the lens in the hand with its optical axis at right angles with the surface of a sheet of paper upon which are some fine black lines—not fine lines in a microscopical sense but lines about one-sixteenth of an inch apart. If, when the lens is held true, the lines bend inward—that is, toward the centre of the lens, the spherical aberration is undercorrected. But if the lines bend outward at the centre, having a barrel-shape, the spherical aberration is overcorrected. This latter quality, however, is rarely found in a photographic lens. This test is not to be regarded as a very delicate one, and, if a lens be enough out to show undercorrection, in this way, it can safely be said to be a pretty bad lens.

One other quality, worthy of mention in connection with this subject, is “rapidity.” Many photographers have curious ideas in regard to this matter, arguing as if they believed it to be some abstract quality that the optician has power to inculcate into a lens. They seem to reason somewhat after the manner of Socrates when he argued that most qualities were entirely abstract in their nature and that anything possessed them to just that extent to which they entered into its make-up. That is, “beauty” was considered by Socrates to be an abstract quality or power and any person or thing was beautiful in just so far as the nature of the person or thing partook of this quality—beauty. Now this was undoubtedly a very pretty philosophy for Socrates but that was many years ago, and in these practical days it won't do to apply the idea even to photographic lenses. Rapidity is in any photographic lens just in proportion to the excellence of correction for spherical and chromatic aberrations taken in connection with its proportional aperture. That is, the proportional aperture of a lens admits a given quantity of light and if the spherical and chromatic aberrations are so perfectly corrected that this light is all brought to one focal plane, none of it being dissipated, the lens is as rapid as it can be; for the simple reason that every ray of light passing through it is utilized. That is rapidity.

In conclusion, I would like to say a few words which might be called a digression. Perhaps they are. It may also be claimed, that, in this presence, they can have no application whatever. Perhaps they do not. But, like a stone, causing ever widening circles to agitate the water into which it is cast, this may be the starting-point of thought for some person, hitherto unsuccessful, and cause him to search in the right direction for the cause of his failure. If so, these efforts will have been fully repaid.

It has come within the observation of the writer that the average man, when attempting the accomplishment of anything which may be somewhat difficult of achievement, or, something which, perchance, he does not fully understand, if, figuratively speaking, success does not perch upon his banner, he is very apt to seek diligently for the reason of his lack of success in some of the outside elements entering into his endeavor, rather than to acknowledge in the slightest degree that the failure should be attributed to his own lack of experience, or, perhaps, ability. It may be taken as a fair rule that, if the average unsuccessful man, in any of the various walks of life, would accept, as a hypothesis, if nothing more, that his lack of success could be attributed to some defective element in his own make-up, and spend as much time and energy finding out that weakness and seeking to remedy it, as he does searching for a reason for his failure in the work of others, the condition of mankind would soon be much further advanced and the average lot of man much happier. People are so prone to seek self-justification at the expense of others. Now this is not simply a little homily but it contains a principle which must be applied before the full benefit of its workings can be appreciated. If, in attempting to make photographs, the first or many succeeding efforts are not successful, don't lay it to the apparatus till it is an absolute certainty that the fault is not with the operator.

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### PHOTOGRAPHIC MOSAICS, 1888.

AND now, the *twenty-fourth* time, we offer our little annual for the patronage of our generous readers.

Even if it were modest in us to write a review of it for these pages, we could hardly do better than say, *examine the list of good things in it, as detailed in the advertisement.* It seems to us there never was such a valuable collation of photographic papers as there is in *Mosaics* for 1888. We leave it to your honest judgment if the old contributors and the new ones have not even exceeded themselves in giving us such valuable papers for our mutual benefit. The articles are unusually remarkable for concentration and for coming at once to the practical point.

The pictorial phase of the work is largely due to the Moss Engraving Co., who have supplied three full page "Mosstypes" for the frontispiece. Of these, one is "A Little Rosebud," from a negative by Mr. P. H. Rose, Providence, R. I.; a second is "Man know thy Destiny," by Mr. James Landy Cincinnati (both prize pictures); and the third is a portrait of Edward L. Wilson, from a negative made by the late sculptor and master photographer of Paris, M. Adam Salomon, used by request.

The fact that a twenty-fourth issue of *Mosaics* is demanded; that 1000 more were wanted last year than we could supply, and that thousands for 1888 are already sold, make us feel that every one ought to have it. See the advertisements.

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### OUR PICTURE.

"A LADY FAIR" embellishes our issue this time. It is an example of pure, plain, unadulterated photography, from negatives supplied by Mr. H. McMichael, Buffalo, N. Y. Its loveliness as a photograph is in the simple treatment of the "lady fair" as a model, and in the admirable technique. The pose is natural; the lighting is bold and strong, and admirably graded, and there has been no effort for "stunning" effects. It is a fine study. Mr. McMichael used the same model for one of his full sheet portraits which obtained him the prize in Chicago. He also exhibited there several other portraits of the same lady, of various sizes, of exceedingly uniform quality—all fine. There is no one among our American photographers who has grown more steadily

for the past three years than Mr. McMichael has. Every exhibition of his work shows great improvement. The secret of this may be learned from the gentleman himself, for he makes it all plain in his contribution to *Mosaics*, 1888, which we add below. He heads his revelation there :

“ART IN PHOTOGRAPHY.”

“Very little interest can be added to the literature of photography by extended discussion as to whether this industry is an art. It seems to be a very simple question, and may be at once answered categorically in the affirmative, if the terms used are understood according to established authorities in language. Photography, or photogenic drawing, is the effect of solar light on certain prepared surfaces of which there are many kinds and modifications. There may be produced a picture of any object desired or selected for representation.

“This would be a product of physical laws operating on material as they are combined by human skill under scientific teaching. Hence, in the business, and also the avocation, of photography, skilled labor, or ingenuity and labor combined, together with that intelligence in the relation to physical laws which science promotes and confirms, are all essential to the best results. For the earnest pursuits of art men welcome all that is exemplified and taught by nature as indispensable to their improvement of its benefits.

“For that improvement something is accomplished which is not directly taught or ever suggested by nature. And the doing of this is art. When, therefore, the photographer brings to his work skill, ingenuity, refinement, good judgment, and æsthetic culture, together with the requisite scientific knowledge of the materials he uses, he is an artist by practice, and he will be recognized by his patrons and the general public as the creator of works of art.”

Any bright photographer will read “between the lines” of his paper that Mr. McMichael attributes his growth and improvement in art to his *Study of Art Principles* as laid down by John Burnet and others.

The negatives were made on *Stanley plates*

Six were used, of very uniform quality. The prints were made by Messrs. Roberts & Fellows, Philadelphia, on the famous N. P. A. paper, imported for us by Messrs. E. & H. T. Anthony & Co., New York.

This is the first of the “Prize Takers” series. The next will be a mosaic from the collection of Mr. Oscar Suck (Germany).

CAUTION.

THE NEW POSTAL LAW.—As our readers are all in the habit of mailing photographs with their imprint, business card, or “from” notice on the envelope or stamped with a rubber stamp upon the wrapper, we desire to caution them to observe carefully the new postal law, not only that they may escape penalty, but that they may not cause their patrons and friends to pay letter postage upon pictures which were intended to be prepaid. For example, a parcel of proofs came to us with this notice on (three cents postage paid).

To Postmaster.

Should this package miscarry, or remain undelivered, if you will kindly notify of amount required, stamps will be forwarded for its return to

WM. J. DORNAN,  
100 N. Seventh St., Phila.

It was stamped at the Postoffice, “due nine cents; subject to letter rates; unlawful printing on the wrapper.” From Dakota came a parcel of photographs stamped, “From H. Butler, Photographer, etc.” twenty-one cents due for reason given above. Either of above should have read, “If not found, return to,” etc. That would have been allowable.

The new law reads thus, as to fourth-class matter.

Fourth-class Matter.

There may be *written* or *printed* upon the face or surface of a package of Fourth-class Matter :

1. A return request.
2. The name and address of the sender (but not his occupation or business), preceded by the word “from;” also those of the addressee.



3. The number and names of the article enclosed.

4. There may be *written* or *printed*, upon the articles enclosed, or upon a tag or label attached thereto, one mark, number, name, or letter, for purpose of identification.

5. There may be printed upon a patented envelope or wrapper enclosing, or upon a patented tag attached to, any article of the fourth class, the word "patent" or "patented," followed by the date of the patent; but neither the name of such patented envelope, wrapper, or tag, or of its patentee, may be *written* or *printed* thereon.

6. There may be enclosed with any articles of merchandise *printed* matter giving descriptions, directions for use, or other information respecting the articles, as part of the original packages or labels done up for sale.

The penalty is letter rates and liability to \$10 fine.

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## A WORD FROM MR. BARDWELL.

DETROIT, NOV. 21, 1887.

EDWARD L. WILSON,  
Philadelphia Photographer.

DEAR SIR: At the last meeting of the "Photographers' Association of America," its members were pleased to remember some services that I had done for the craft in times gone by, services that I gave at the time without the expectation of fee or reward. Knowing the power I possessed, to have withheld it would have been a lasting disgrace to my own feelings, that would have followed me through life. To make the knowledge I possessed available, I had to make a sacrifice no less than closing up my gallery for the time I might be gone. This I did on the occasions when my presence was required in Philadelphia and Chicago, and at a time when I was doing as good a business as any gallery in Detroit. But the success in lifting a burden from the craft that would have been felt by every individual photographer in the land, was of itself a sufficient reward, and of which I have had reason to feel proud. And now, when travelling on the down hill of life, with sadly impaired eyesight, and struggling in the battle of life, the brethren of

the "Photographers' Association of America" have been pleased to stretch out their hands with substantial aid; the unanimity with which it was done is exceedingly gratifying to my feelings, and for which aid I wish to make public acknowledgment; also to acknowledge the princely individual gift of President G. Cramer of \$50. I feel some delicacy in writing on this subject, but the gift was a public one, and it is due to the brethren of the Association that I make public acknowledgment that I feel very grateful to them and to President Cramer, for their kindness. I hope they will never have reason to regret it, nor any one of them be left unprovided for when approaching the end of their journey.

I am, respectfully and fraternally,

JEX BARDWELL.

[Who else will subscribe? We have also from Edward Cope, Esq., \$20; A friend, \$5.—ED. P. P.]

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## NOTES FROM THE PARIS STUDIOS.

BY OUR OWN CORRESPONDENT.

### A PARISIAN PHOTOGRAPHER.

Our readers cannot fail to remember the remarkable series of portraits of M. Chevreuil the French centenarian scientist, reproduced last year in the PHILADELPHIA PHOTOGRAPHER, the work of M. Paul Nadar. This establishment, on the Rue d'Anjou, is at present one of the largest in Paris, but he expects shortly to erect a new building much larger, to contain his growing business. The present establishment occupies three floors, and besides a large amount of space occupied by stock, contains a complete photographic atelier, with a fine suite of reception rooms. As a typical Parisian photographic establishment, its description may, perhaps, be interesting to our readers.

On the first floor is the stock department, where everything necessary for photography, including all the good journals, is to be found. Much of the stock is manufactured on the premises. Cameras and lenses of all the more celebrated makers, manuals and periodicals, and an assortment of plates

and paper of all nations—French, German, Belgian, English, and American—are all to be found. On the top story, of course, are the ateliers and printing rooms, an enormous amount of space being devoted to the latter. There are two ateliers, both with the much desired north light, but neither with any very remarkable features. The glass extends their entire length at the top and side, one being about 45 feet long, the other about 25, and both rather narrow. The light is regulated by the familiar system of curtains running on wire. The charming work to be seen down-stairs is due, as always, to no occult quality or unattainable advantage possessed by the atelier, but simply to training and skill, making use of the ordinary means. And there is charming work to be seen, thoroughly artistic photography, of which we hope later to present our readers with some examples. There will be something to learn in them, although the contemplation of the best examples of European photography is marvellously less impressive to an American to-day than it would have been a decade ago. We are running a good race, and with Rose, McMichael, Cramer, Guerin, and others, do not at all need to seek at distant shrines the goddess of true art—Photography, in these days.

In the operating rooms there are no "dodges" of special novelty, rather the contrary; it is the American who leads the way in fitting up little conveniences and perfecting his details. There is, of course, a room devoted to the indispensable amateur, who is numerous in France as elsewhere, and in which practical lessons in photography are given. The real feature of the establishment is in the reception rooms, and what is in them. These, so often made so little of by the American photographers, are a real lesson on what the patron's rooms should be.

The finest room in the establishment, a very large one with a skylight like a picture gallery, is the general reception room, and it is, in fact, a gallery. No wrecked furniture, no piles of cards and dusty frames, nothing of the shop is visible. It is as it should be, a parlor to receive in. Plants make a pleasant greenness in it; soft and

comfortable chairs are found in every portion of it; the walls are hung with pictures, and in part frescoed. An elegant little desk at the further end is the sole sign that it is not the parlor of a private house; that, and the examples of the work of the establishment that are placed around the room on easels and stands, or that hang on the walls. Among these are some superb-enlargements, worked up in pastel and crayon, although this class of work is not so greatly in demand here as at home, principally on account of its rather high price. One enlargement of Madame Sara Bernhardt, on bromide paper, is of full life size, and three-quarters length. On account of the much greater amount of artistic talent obtainable here, the high quality of this class of work is very noticeable.

Upstairs are one or two other rooms, and the toilet rooms of the two ateliers, both exquisitely furnished. They are upholstered in harmony throughout, and decorated with pictures and bric-a-brac. Books and albums lie on their tables to distract the waiting patrons, and it seems as if one could hardly issue from these rooms with any feeling of nervousness.

For, sad as the truth may be, it is certainly an unfortunate fact that the surroundings of the atelier are often not such as to put the waiting customer into the best frame of mind for the proceeding that is about to be gone through with. And if, through the natural vanity of mankind or for want of a better subject he begins thinking of himself, and how he, or especially she, "will look," the chances of a natural and successful photograph diminish exceedingly. It is an odious reference, but whence comes the too-familiar association of the photographer's and another place where operations much less artistic are performed? Of course not every photographer, very few, perhaps, can have a reception room which would compare with that of a Fifth Avenue mansion. But there are certainly few who could not improve their reception rooms on this principle, and make them more pleasant and attractive. For business reasons it is advantageous to do so. The reception room ought to be a small art centre in its way, a place that people would come to see, and, as

every business man knows, to do that is the first step to success. Persuade them to come to you, get them interested, that is the beginning of business.

And to take higher ground, we insist, as we have always insisted that photography is art, and its true followers worthy of all the respect, and under all the responsibilities, that the pursuit of art demands and imposes. They should try to live up to this, to spread their knowledge, and so educate their patrons. They should be very proud if, when one says, "The people of — won't be satisfied now with what they once accepted as a good portrait; they want better work," they can feel that this is, in however small part, due to them. They are serving in the temple of art, and should have all things fitting.

#### A VISIT TO GOUPIL'S.

The name of Goupil is sufficiently well known in connection with photoengraving; and the three establishments in Paris, whose windows provide a constantly changing artistic feast to the passer-by make it a salient recollection of that city. But not everyone who sees these marvels of reproduction is permitted to look behind the curtain and see them in process of creation. The methods by which these wonderful results are obtained are not advertised. The name of the PHILADELPHIA PHOTOGRAPHER, however, proved a password, and under the courteous guidance of M. Jean Boussod, its correspondent was shown nearly all there was to see. Nearly, not quite, one section, the Bluebeard's chamber, that into which the photographic negative goes and out of which comes the plate, few of the employés know anything about, and no stranger.

Out at Asnières, one of the pleasantest suburbs of Paris, is the atelier, occupying a very largespace of ground. It is altogether a wonderful place. Everything is on the grand scale; no skill, no pains, no expense is spared to have all as it should be to produce the best possible work. For example, it has been found necessary to have a very elastic and close fabric as a "blanket" to back the paper in the plate press. Thick satin was found to fulfil these conditions,

and consequently one of the first things one sees, entering the long room where the printing goes on, is several enormous plate presses with their rollers decked out in the very unaccustomed luxury of rich white satin!

We begin with the photographic room, which is not a room but a terrace, in the open air and light. A number of enormous cameras stand on its asphalt floor, several of them quietly doing their work on drawings tacked on the familiar upright board. Other cameras are stored in a building near by, most of them large enough for a kennel for a very big dog, and with a focus to be, one thinks, almost expressed in feet instead of in inches. Inside are stored a number of splendid negatives, clear and clean, some on plate glass measuring 38 x 30. The plates are said to be of an ordinary emulsion, but a great deal of care is taken with the light and the development, and several of the enormous negatives are sacrificed if necessary, to obtain a good result. Then the plate goes into the den of secrecy, and we sincerely wish it were possible to tell the readers of the PHILADELPHIA PHOTOGRAPHER what is done with it there. But one can see only the finished plate, of highly polished steel or copper, or of a zinc and type-metal composition for coarser work. On all, especially, of course, the former, is to be noticed a wonderful fineness, perfection and variety of grain. The plates for photogravure are marvellous in their perfection of surface, and it is said that very often extremely little after-retouching is necessary, though this is freely used when needful.

Besides making their negatives and plates the Goupil establishment makes its own press-rollers—some of these six feet long and seven inches in diameter—and all its inks. We were shown the room where the latter were being mixed, with all the skill an artist uses in mingling his colors for a required tint.

Thence we pass to the press-room where the color work is being done. Very seldom is any work done with less than six impressions, usually with seven or eight; and these are chosen and applied with such skill and delicacy that they are equivalent to

three times that number on coarser work. The first impression, the most important, is in solid blacks and very much detailed. Then follow the reds, yellows, browns, blues, and last of all the flesh tints. So delicate are the last impressions that it is hardly possible for the unskilled eye to distinguish where any one of them has been laid on; but it is these that give a wonderful depth and richness to the work. At present the plates for the famous artistic annual, the *Figaro Illustré*, are on the press. There are two plates for each of the light colors, and from these 5000 impressions are being struck off daily. The edition of 30,000 of these elaborate reproductions will not take, altogether, greatly over a month to print. And most remarkable of all, perhaps, is the delicacy with which the plates are treated in the press. One set of plates of copper and of zinc serve for the entire edition, and would serve for as many more. In fact, we saw a plate from which had been printed 140,000 impressions—a copper photogravure plate. M. Boussod declared it was good for 50,000 more, and, in fact, it showed hardly a sign of wear. This care, by which the plates are made to last is particularly notable.

Next is the photogravure room—a great room with perhaps fifty plate presses. Great plates the size of a large table top are printing in one, and in the next a series of delicious little vignettes for *Les Lettres et les Arts*, in special delicate shades of inks, soft and perfect and full of half-tone. They do not hurry the press here, and perhaps the perfection of the work owes something to this leisure, this care and time-taking.

Upstairs, on smaller presses, the last perfection of photographic engraving is carried on, the reproduction in color of paintings. Here the work rises toward high art. The inked plate goes under the press with a piece of white paper on it. The roller turns for ten seconds, and then the pressman gently pulls off a reproduction in perhaps twenty colors that it would be absolutely impossible for many, if not most untrained eyes, to distinguish from the original. This is a class of work where the Goupil establishment stands quite alone. We in America have nothing like it. And one fears we

never will, for it takes an hour to prepare the plate for each impression, eight or ten impressions are a good day's work. The steel plate is the regular photogravure plate—nothing more. But at his table each workman has a slab with his inks of the different colors from a dozen to fifty or more—actually—of them, set like an artist's palette, which, in fact, it is. Instead of brushes he uses little rolls or pads of muslin, with which he applies the ink, softly working it into the plate, and afterward polishing the high lights with a lighter fabric. He paints the plate in fact, and for one impression solely, it must be all cleaned off and begun again after it has passed through the press. The results obtained seemed simply perfection; reproduction can hardly go further. The impressions command, of course, an exceedingly high price, being probably the most expensive product of any that comes out of the press, running from \$5 to \$20 and more apiece. That they are effective is proved by the fact that one of a water-color by Lelour was sold last winter at the Hotel Drouot, the great auction rooms of Paris, as the original, for \$5000—and that to a connoisseur. Being framed and under glass, and being one of which very few impressions had been taken, it passed for the original until M. Boussod happened to see it, and had the painful duty of disenchanting the happy owner. At present the house is working four different processes of photoengraving. The "phototypogravure" is printed from a series of etched zinc plates in colors. Their "photogravure" is the same as the (genuine) American photogravure, from an etched copper or steel block, in monochrome, or in colors painted on, as described above, but always from a single block. Their "aqua-tinta" is a species of collotype apparently, a cheaper process than the others. The "photoglyptic" is similar to the Woodbury process, producing an imitation of a print on albumen paper. Some work of this sort was not at all up to the standard of the other varieties. And, to end with a bit of art, we noted with much interest a small photogravure plate, being printed for the supremely artistic review *Les Lettres et les Arts*—a charming little bit of woods and

water which was direct from nature, a negative being taken for the purpose.

F. H. W.

### BURNET'S ESSAYS ON ART.

THOSE who have read the PHILADELPHIA PHOTOGRAPHER at any time within the past twenty years, those who have studied the art department of Wilson's *Photographics* and Wilson's *Quarter Century* have noticed our fondness for quoting from the works of John Burnet as authority on art principles. Those who read our magazine in 1867 and 1868, will remember our series of papers on "Art Principles Applicable to Photography," illustrated largely from Burnet. Those who read our magazine in 1875 and 1876 will remember that we reproduced Burnet's *Hints on Composition* entire, by means of photography (Carbutt's process) and that two editions were exhausted, when the sheets were destroyed by fire.

Frequently since then we have been desired to reproduce the work again, and add Burnet's *Essay on Light and Shade*, and Burnet's *Essay on the Education of the Eye*. The outlay required by such an enterprise stood in the way, and we feared to undertake it for want of support. We think the present art status of photography now, however, *demand*s such a work to be done, and following our sense of duty, almost a year ago we arranged with the Photogravure Co. to do the work for us. At last we are enabled to announce the reproductions ready. The three are bound in one volume, complete; are of the size of the original letter-press, plates and all, and are as near as possible fac similes of the originals in our possession.

The originals were collated for us in England in 1866, by Mr. J. R. Knox, and cost us \$40. The original publication price was \$30. We do not think they can now be had at any price. We are able to supply the three volumes in one, handsomely bound, size 10 x 12 for \$4.

*Every page is a photograph*, and some of the pages represent the masterpieces of the old Dutch, Flemish, English, and Italian painters, with many etchings by Mr. Burnet.

We are free to say, if we may be so personal, that we have derived more art in-

struction from these works than from any kindred ones we have ever studied. For over twenty years we have learned from them and taught from them, and now once more commend them. They should be in every photographic library—no, they should be where every art student can pick them up quickly and study them. If they are we may hope the effect upon each reader will be that described below by an artist photographer and one of our correspondents (now dead) ten years ago, as follows:

"When I had an opportunity to open and examine the work, I felt still more confirmed in the opinion that I had been considerably sold. But I concluded to smother my wrath till I found time to go over it more carefully and dispassionately. I soon became convinced that I had expected *too much*; I had looked for something that should demonstrate to me, *with but little effort on my part*, just how a picture should be arranged, *i. e.*, any of my photographic sittings, according to the rules of composition. But when I came to the concluding paragraph of the book, I began to see the whole work in its true light.

"Burnet says, 'I must caution the young artist against supposing that these modes of arrangement are given for his imitation; I merely wish him to be acquainted with the advantages any particular composition possesses, that in adopting any invention of his own, he may engraft upon it those or similar advantages. A design that has nothing but novelty to recommend it, is a conceit, not a composition. The student in art can hope to derive advantage from theory only, when rendered obvious by ocular demonstration.'

"This satisfied me that there was something for me to do. I was not merely to glance over the work superficially and pass judgment upon its merits; I was convinced there was something in it that required effort on my part to get it out. No man would expect to find gold or precious stones lying upon the surface of the ground, however rich the field might be; he would expect to dig for them; and so I concluded to dig into this book. I have not explored far enough yet to get the real essence of what I am sure it contains; but sufficient has been revealed to lift me, as it were, into a

new atmosphere. A closed door seems to have been opened, and I begin to see new beauties everywhere; pictures have a new meaning to me; some of the engravings of the pictures from which these little sketches were made, which I fortunately possess, have suddenly become endowed with new qualities, and possess to me a value that I never dreamed of before. This is how the work is affecting me, and I begin to see how its principles are to be applied to our art in everyday work.

"If any have experienced at first a disappointment similar to mine, I would say to such, do justice to the book by giving it careful study, and my word for it, a new light will dawn upon you, you will see beauty where you never saw it before, and when once commenced it will grow upon you, and you will soon seem to be living in almost a new world.

As to the price of the book, its intrinsic value can scarcely be estimated; it is not to be measured by most other books; it is not a mere statement of facts, or finely constructed theories, which are to be read and scarcely thought of afterwards, but as a stone falling in the middle of a quiet lake, which causes waves to radiate out and on till lost upon the shore, so the thoughts which will spring from this splendid work will spread out over all of one's future life, continuing to expand and grow broader as their waves flow on and on.

"Excuse me for encroaching so much upon your time, but I have become enthusiastic on this art subject, and felt that I must tell you how I regard Burnet's *Hints on Composition*. You are at liberty to make such use of this as you may deem proper."

Please read the advertisement elsewhere. We suggest this new work—a proof of the great reproductive possibilities of our art—as a fine holiday present from employer to employé, for friend to photographer, and for photographer to friend.

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### THE WORLD'S PHOTOGRAPHY FOCUSED.

A NUMBER of remarkably fine portraits of well-known amateur athletes in motion, illustrate Dr. Sargent's article in the

November *Scribner's*, on "The Physical Characteristics of Athletes."

THE photographer's lens is more discerning than the naked eye. A recent photograph of a figure-painting by an American artist shows that a woman's gown was first painted a hue and texture very different from that finally chosen, the underlying brush work appearing plainly in the photograph, though not seen by the most attentive observer of the original picture. In like manner photography reveals stars that to the human eye are not distinguishable from nebulous matter.

A LENS which magnifies, and yet is perfectly flat on both sides, is a scientific novelty. It is made at Jena, by the manufacturer of Professor Abbie's new optical glass. The lens consists of a single disk, the density of which varies so that its refractory power decreases regularly from the surface inward.

THE THUNDER-STORM OF AUGUST 17TH.—The Meteorological Society having, as we have already said, expressed the wish to obtain from our amateurs some photographs of lightning, several of our most skilful have responded to this call; but the best print that we have seen is that made by Mr. A. W. Bates, director of the bank at Putney. The engraving published in the *Photographic News* gives but a poor idea of it. Mr. Bates obtained this photograph by exposing his camera at an open window in the third story of his house during the terrible thunder-storm of the 17th of August last, from half past 8 to 9 o'clock P. M. This storm, which put an end to a long dry spell, commenced at Putney about 6 o'clock in the afternoon and lasted until 9 o'clock; during these three hours the thunder rolled almost continuously, and the flashes of lightning so numerous—they were counted by hundreds—that the photographic reproduction of a well-defined flash was almost impossible about nine o'clock. However, Mr. Bates obtained the reproduction of a flash which caused, at the northwest of us, the death of two men, whilst a third was seriously injured. We see on the print the great thunderbolt which reached the earth,

and three branches much smaller, which neutralized the clouds around at the same moment. For us, this print has special interest, as the three men struck were each at the angle of a nearly equilateral triangle, whose side measured only about 110 yards, and in the centre of this triangle is placed the house of one of our relations.—*Moniteur*.

**DAILY STUDY OF THE CLOUDS BY MEANS OF PHOTOGRAPHY.**—We know that Humboldt has spoken of the appearance of the heavens during the rainy season in tropical regions. Something similar occurs in our climate after a long dry spell. In our diary we have sketched on several occasions the singular appearance of the sky during the months of July and August, and we believe that a photographic reproduction of the cloudy sky made daily toward night and taking note of the weather, that is to say of thermometer dry and wet, of the barometer, of the direction of the wind, etc., might offer great interest to meteorologists. In an artistic point of view, there would be no time lost as the most charming and unexpected effects are produced almost every night, and most of the time remain unseen, so little accustomed are we to look toward the heavens.—LEON VIDAL.

**JOURNAL OF AN AMATEUR SOCIETY.**—The Amateur Society of Manchester, having in hand the necessary funds, announces that it will in the future, publish a quarterly review, containing a report of its work.

**A NEW LIGHT.**—There is question at the present time, of a new light invented by M. Hannay, which has for its principal object, the lighting of large spaces and night work in the open air. The inventor showed his appliance a few days ago, to a numerous audience in the Crystal Palace, and caused the new light to shine. This is obtained by burning, under pressure, oil of impure tar reduced to atomistic dust, and in this condition mixed with atmospheric air. Not only is the light very intense, but the heat produced is powerful enough, using a burner of modern size, to melt a large piece of brick. I do not know if, up to the present time, the actinic properties of this light have been ascertained.

**THE PHOSPHORESCENT LIGHT OF GLOW-WORMS.**—From the curious experiment mentioned in one of the late numbers of the *Moniteur de la Photographie*, in which a glow-worm acted, by the light emanating from its body, on a gelatino-bromide plate placed at the bottom of a darkened box; this light appears to be about of the same actinic intensity as the phosphorescent light of sulphuret of calcium. It appears that the light of glow-worms, lucioles, and of all phosphorescent animals, is caused by a substance called *noctilucine*, which is secreted by the insect as it is used, and that the light is due to the slow oxidation of this substance. If some of these insects have been seen to retain their luminosity in a vacuum, or in hydrogen gas, it is because their tissue always contains enough oxygen to allow the slow oxidation of the noctilucine to continue under these circumstances for a certain length of time.

**FIRST EXHIBITION OF THE INDIA PHOTOGRAPHIC SOCIETY.**—The India Photographic Society announces that its exhibition of 1888 will be opened at Calcutta at the beginning of January and will remain open about three weeks or a month. There will be two classes of medals: 1st. Competition open to all comers. 2d. Competition between native amateurs only. The address of the Secretary of the Society, who receives the articles for exhibition is, No. 8 Clive Street, Calcutta. It is the first exhibition of the India Photographic Society, and we wish it great success.

**REPRODUCTION OF A RAINBOW.**—At the London Photographic Association, Mr. Palmer called attention to a landscape photograph having a rainbow. This last appeared on the print as if it were something solid, a wooden arch, for example, placed in the landscape. This is the first time that I ever heard of the reproduction of a rainbow by photography.—DR. PHIPSON.

**ENIGMATICAL IMAGES ON THE ROCKS OF SOUTH AMERICA.**—The celebrated architect and antiquary Fergusson who visited India several years ago, brought home some magnificent photographs of the ancient monuments of that remarkable country. But

what has not yet been reproduced are the curious images graven on the rocks of South America, mentioned by Alexander von Humboldt, and discovered principally by Robert Schomburk. Between the 2d and 4th degree of north latitude there exists a large plain in which are found granite rocks covered with symbolical figures; colossal figures of crocodiles and signs, household utensils, images of the sun, and moon, etc. It is a corner of the earth to-day deprived of inhabitants, on an extent of twelve hundred square miles, and these artistic works of an extinct race have given and still give rise to ethnological discussions among scientists.—DR. PHIPSON.

**NEW OBJECTIVES FOR MICROSCOPIC PHOTOGRAPHY.**—At the last meeting of the London Photographic Association, Mr. Charles Trinks spoke in favor of the new objectives for microscopic photography, manufactured at Iena, according to the formula of M. L'Abbé. By means of these objectives, Mr. Trinks says that, in the reproduction of diatoms, he was enabled to get details which he could not otherwise have obtained. In these objectives the effect is produced by great magnification combined with a large opening. In regard to diatoms, we saw in Paris thirty years ago, reproductions of these singular beings by M. Bertosch, which left absolutely nothing to desire. It was under the reign of collodion, and at the time when photography commenced to make rapid progress. We speak of 1856 to 1860.—*Moniteur*.

**PAPER NEGATIVES ON EBONITE.**—Mr. Traill Taylor makes known a curious experiment. Captain Murray having pressed a paper negative against an ebonite plate could not afterward remove it, although he tried to do so in several different ways. At last it was found that by heating the ebonite plate it was possible to easily remove the negative. Since then Mr. Taylor has repeated a number of times the experiment.

**INSTANTANEOUS MAGNESIUM LIGHT.**—An instantaneous magnesium light may be obtained, it is said, by mixing 12 parts of chlorate of potash, 6 parts of magnesium in powder, and 1 part of pirocyanuret of

potassium. On applying a light, this mixture gives a sudden flame, very brilliant, which lasts from one-thirtieth to one-fiftieth of a second, when small quantities are used, and it is asserted that the light produced is more intense than that of magnesium, in wire or in ribbon, burnt in the air.

[Translated for the Philadelphia Photographer.]

### M. ATOUT-TAILFER'S ORTHOCHROMATIC PATENT.

M. ATOUT-TAILFER sends to the *Moniteur* the following extracts from the additions which he has made to the patent obtained by him in December, 1882. The certificate of addition bears date of April 6, 1887, and by it he specifies that under the generic term of eosine he includes all the iodized, bromized, chlorized compounds, acids or alkalis of fluoresceine, namely, the iodofluoresceine, the Bengal and Hortensia roses, etc., as well as cyanine, as has already been indicated in the English patent of January 7, 1883. "I used these divers bodies simultaneously or separately according to the work to be done. In regard to the spectral investigation, which is claimed as a German invention, I wish to distinctly state that the use of the spectroscope was the basis of all my investigations long before the obtaining of my patents of 1882. I also state that my foreign imitators, Vogel among others, are so far from my manner of operating that the work of this last shows even that he has found nothing in my preparations, since he finds as the last improvement in his process the soaking of the finished plate, which is absolutely an empirical method, preventing the obtaining of stable products. The only good method is the chemical one—that is to say, the method which consists in making the product directly by the incorporation of the ammoniacal solution of eosine with the emission of the gelatino-bromide of silver at the moment of its formation. It is this process that I use exclusively, and it is in this way that I obtain all the known degrees of sensitiveness. Moreover, the most wonderful fact is, that the different coloring products have different properties, and it is only by a judicious mixture of the different com-



pounds that a truly perfect result is obtained. In the certificate of addition, dated April 6, 1887, to my patent, M. Armengaud, Jr., my agent, did not give the following additions to the principal patent taken out in England, February 7, 1883, namely: "I use a solvent for the eosine, not only ammonia, but also potash, soda, carbonate of ammonia, etc.—that is to say, all the alkalis and their compounds capable of entering into combination with the haloid salts of silver." (English patent, paragraph 40.)

These additions are especially taken to prove that isochromatic photography is wholly a French invention, and that the divers formulae of baths composed of erythrosine, of cyanosine, of ammonia, of carbonate of ammonia, etc., which are indicated by different foreign authors, are merely imitations of what is specified in my French, English, and Belgian patents." [Pretty strong language this, which some of the contestants will not subscribe to.—ED.]

## Editor's Table.

A YEAR'S subscription to the PHILADELPHIA PHOTOGRAPHER will prove an acceptable holiday present to *any* body, your operator for instance.

Wilson's *Quarter Century in Photography*—ditto.

Wilson's *Photographies*—likewise.

*Photographic Mosaics*—also.

*Photographischer Almanak und Kalender für 1888* has been received from Dr. ED. LIESEGANG, publisher, Dusseldorf, Germany. It is a little volume which we always welcome. It is pictorial and practical both, this year. The frontispiece is a lovely "Instantaneous Marine" on Aristotype paper.

MESSRS. ROBERTS & FELLOWS, 1125 Chestnut St., Philadelphia, the largest manufacturers of lantern slides in America, have just published a new and beautiful catalogue of slides, lanterns, and apparatus. It contains 140 pages and is very desirable for reference by buyers of slides, lanterns, stereoscopic and other views.

MR. F. JAY HAYNES, Fargo, Dakota, has favored us with his new catalogue of his wonderful views of the Yellowstone Park and Columbia River scenery.

A VALUABLE paper is that on "Some Easy Methods of Testing Photographic Lenses," which appears on page 722. The author, Mr. HENRY H. TURNER, is well known to many of our readers. He is a member of the Gundlach Optical Co. The paper was read by him at the last meeting of the American Microscopical Society (held at Pittsburgh), of which Mr.

Turner is an active member. It gives many points not generally understood, and we bespeak a careful reading for it.

A paper so practical and from a skilled optician, is sure to serve an excellent purpose, and much credit is due to the generous author for the care he gave to its preparation.

THE *British Journal Photographic Almanac*, and the *Photo News Year Book of Photography* will appear about January 1st. Supplied in English binding only, at 50 cents per volume.

"ALBION CAMERAS" are now produced (English model) by the American Optical Co. Send to Scovill Manufacturing Co., New York, or to your dealer, for a circular.

FIVE HUNDRED copies of *Quarter Century* have been purchased by Messrs. PERCY LUND & Co., Bradford, England, to whom our foreign readers may apply for copies. Circulars supplied on application.

ITEMS OF NEWS.—MR. J. D. CADWALLADER, Marietta, O., has sold out (after twenty-eight years faithful work there) to Messrs. BACON & KING, former employees. Much success to the second generation.—MR. JAMES STUBBERT, North Sydney, C. B., has fine *press* praise for his portraits of the Atlantic Cable staff stationed at his home. Good.—MR. W. D. GATCHEL is booming business at Louisville, Ky., at the old stand. Don't overlook the veteran and his son.—MR. E. F. HARTLEY'S estate has been appraised at \$200,000.—MR. R. M. DAVIS, Denver, Col., has opened his new Stock House in Arapahoe St. It is a handsome establishment, and copies of all of our books may be seen there.

MOONLIGHT and gaslight views from Mr. H. BUTLER, Vermilion, Dak., show us again the wondrous possibilities of photography. A moonlight view of the college at Vermilion is better exposed than some daylight views we see—exposed two hours and twenty minutes. Some street views of the "Corn Palace Jubilee" parade at Sioux City, made by gaslight are also very well done. "The husky, rusty rustle of the tassels of the corn," and the marching processions, the crowds of people, and the myriads of gaslights are all wonderfully caught, while the great "corn palace" is brought out in clear detail.

MR. J. W. BRYANT, Laporte, Ind., has favored us with three specimen albums of photographs from his backgrounds and accessories. A splendid variety of sceneries—a choice from the tropics to the North Pole is supplied by this artistic background painter. A new line of snow scenery and winter accessories has just been completed. Mr. Bryant's establishment is one of the great evidences of American photographic growth.

MR. E. LONG's solar enlargement establishment at Quincy, Ill., is one of the necessities of the great west. He has sent us an excellent 20 x 24 bromide view of the printing department, solar cameras, and operatives, which is excellent.

THE souvenir albums (folding), so well known in the trade, grow more and more popular each year, at resorts and watering places. They are supplied by Mr. ADOLPH WITTEMAN (who originally introduced them) at his new manufactory, 58 & 60 Reade St., New York.

THE *Northampton* (Mass.) *Journal* celebrated its twenty-fifth anniversary by issuing a magnificent illustrated edition of 48 pages, embellished by over 300 portraits and views, nearly all done by the Moss Engraving Co., New York. It was a wonderful undertaking and is splendidly done. Any one wanting some fine portrait studies could not find a cheaper collection (35 cents) than this. We do not think its equal was ever undertaken. It is a wonder.

THE cover of the Christmas number of *Scribner's Magazine* is something entirely unique in the field of magazine publication.

AMONG the skilful engravers whose work appears in the Christmas *Scribner's* are such well-

known names as Robert Hoskin, Frank French, E. Heinemann, Elbridge Kingsley, and Fred. Juengling.

A NEW ENGINE.—The success which the DAVEY SAFETY ENGINE has achieved has induced the manufacturers, Messrs. CHARLES P. WILLARD & Co., 236 Randolph St., Chicago, to place upon the market a new form of motor of one, two, and four-horse power, especially designed for school houses, electric lights and heat power for photographers, court houses, office buildings, or private residences, where a system of low-pressure steam heating is in use, for running machinery, or circulating hot or cold air by means of a fan. The engine is a modification of the Davey Motor, and, like it, does not require any steam pressure, taking its steam supply from a radiator or the exhaust of a high pressure engine, or from any steam generator which will furnish steam at one pound pressure. Like the Davey, this motor is absolutely non-explosive and safe.

Full particulars may be had by application to the manufacturers, as above.

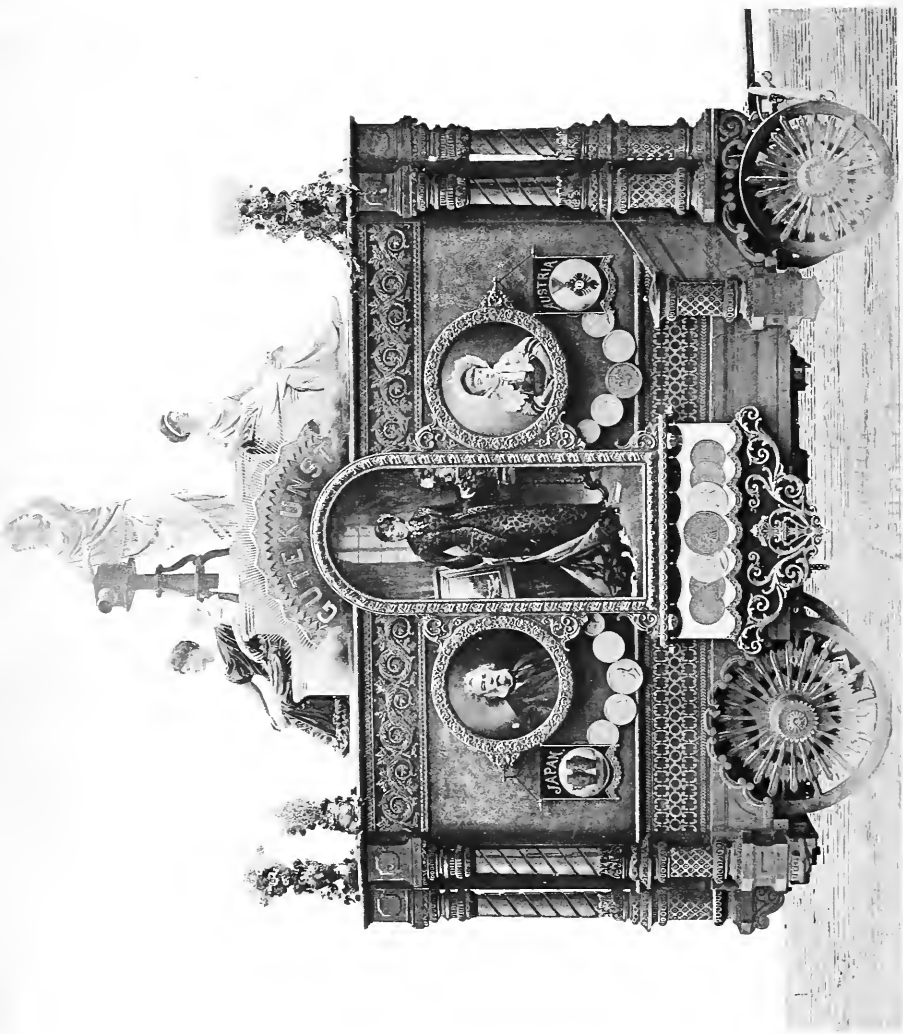
THE SMITH & PATTISON *Duplex Polisher* is gaining laurels in England as well as in America. Commenting upon some "duplex" polished pictures, the editor of the *British Journal* says: "So beautifully are they polished that we thought they were enamelled."

*Quarter Century* in England.—Mr. A. R. DRESSER of the London *Camera Club* says of *Quarter Century*: "I find it full of information and a very useful book which every one should have on his book shelf. A more useful book and with so much information, I have not seen."

LIGHTNING WORK.—Mr. D. D. UPSON, Hampton, Iowa, did some quick work recently. Jos. Schnee, a citizen, disappeared. Mr. Upson made 200 photographs of Joseph and had them finished for postal cards, to help track him, in four and a half hours after he received the order. He made them from one negative, on bromide paper, and did his usual "Saturday work" besides.

DO NOT BUY PROCESSES OF ANY ONE.—The country is being infested again with process-mongers, offering all sorts of "improvements," "magic developers," "processes," etc. The last one was for tinting a photograph and then adhering a piece of mica to it. Don't be tempted. The process offerers will soon die out if you will let them.





TROPHY-CAR OF F. GUTEKUNST,

used in the Parade of the Centennial Celebration of the adoption of the Federal Constitution.

PHILADELPHIA, SEPTEMBER 15, 1887.

THE

# Philadelphia Photographer.

EDITED BY EDWARD L. WILSON.

Vol. XXIV.

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No. 312.

1888.

THE prospects for our twenty-fifth year are; we are glad to say, wonderfully encouraging. The leading article in our last issue seems to have developed a great many kind words, new and renewed subscriptions. They continue to flow in upon us daily without much of a restrainer. Many thanks to all who are so prompt. We know that this is a busy and anxious time of year with a large number of our readers and they may be assured of our sympathy and help, whenever it can serve them. We are assured that but few of them *want* to discontinue the semi-monthly appearance of our magazine in their studios, and, therefore, the next issue will be sent to all who have not requested differently, with the hope that all will see the *necessity* of informing us at once whether or not we shall keep up the habit for another year.

We shall send order-sheets and circulars also to everybody—very urgent ones. Those who have been prompt will please take no offense at this, but kindly try to turn them over to some one who needs them. The more subscribers we have, the more talent we shall be able to employ for increasing the value of our magazine. Do you not see and feel that our interests are mutual?

## MOSAICS, 1888.

THOUSANDS of copies of our little annual have gone out to the dealers and our mail messenger has been groaning over or under the weight of extra work which has been

caused by those who send directly to us for *Mosaics*, 1888. One hundred and forty-four pages of such expert matter for 50 cents is a wonder.

We issue a cloth bound edition to distribute among the authors, and have a few copies left. The price is \$1 per copy.

It will be seen from the pages of our current number that they are largely filled with the overflow from *Mosaics*. We regret that many articles did not come in time to get in the book. In some cases articles were prevented by the delay of the engravers. The *P. P.* readers thus get a fine benefit at the end of the year. If you want *Mosaics*, 1888, at all, secure it *now*. It may all be gone soon.

## HYDROKINONE DEVELOPER.

FOR transparencies and photo-engravers' negatives.

No. 1.

Soda Carbonate . . . 400 grains.  
Water . . . . . 8 ounces.

No. 2.

Hydrokinone . . . . . 96 grains.  
Soda Sulphite . . . . . 480 grains.  
Water . . . . . 8 ounces.

*Developer*.—No. 1, two drachms; No. 2, four drachms; Water, two ounces.

One or two drops ten per cent. solution of bromide of potassium.

We recommend the above developer for lantern slide transparencies, and the making of very intense negatives from black and white drawings or engravings, for photo-engravers' use.

JOHN CARBUTT.

### "THE BEAUTIFUL AND AGREEABLE" IN ART.

As an example of the practical nature of Mr. Burnet's instructions we quote the following from his essay on "Composition:"

"As I have made use of the terms 'beautiful and agreeable arrangements,' it is proper to give an explanation of the sense

savage and the philosopher from their sensations merely as men; but a painter, whose life is spent in a constant competition with nature in producing the same effects, receives a tenfold gratification in following her through those assemblages which to the world beside are, as it were, 'a fountain sealed and a book shut up.' Hence, in art, a beautiful arrangement must be a selection

FIG. 1.



in which they are applied. By a beautiful arrangement, I mean a proper adaptation of those principles that arrest a common observer, and give a pleasurable sensation, which to a cultivated mind increases (not diminishes) by the investigation of the cause which produces it. For example, a beautiful appearance in nature affects the

of those forms, lights, and colors that produce a similar result; and the taste of an artist is shown, in heightening their effect by the absence of those circumstances which are found by experience to produce the contrary. Did an investigation of the means pursued by the great masters tend to abridge an artist's pleasurable sensations, instead of

being the most favored, he would be rendered the most miserable of beings; but the opposite is the case, as by such means he is taught an alphabet that enables him to understand the language of nature. It may be supposed, that in my search after

mind; but as I wish to avoid all controversy on the subject, which we often find merely renders the most sublime truths more obscure, I shall only remark, that, as far as painting is concerned, the authors of many of these works have done an irreparable injury.

FIG. 2.



Artists generally prefer the opinions of untutored children to the remarks of the most learned philosophers, whose advancement in other sciences really seems to increase their ignorance of this. If I have explained my definition of the terms sufficiently for the artist's comprehension, I am satisfied. To explain them to others would be equally impossible as that those others should be able to define them to us. The mind must have received its education through the medium of the eye, not of the ear, to enjoy the faculty of conceiving such ideas, or the power of tracing them to their original source in nature, or in art, as a test of their truth."

We might aver that the whole secret of producing "beautiful and agreeable" pictures is involved in the seven lines following, which we repeat and italicize.

so desirable an object, I have perused all the works written to define Beauty and Taste, and which endeavor to circumscribe with a line that endless variety and omnipresence which make nature a source of gratification to all nations under every alteration of the

Put them up in sight somewhere in *large letters*, where you can always be haunted by them;

*"Hence, in art, a beautiful arrangement must be a selection of those forms, lights, and colors that produce a similar result; and*

*the taste of an artist is shown, in heightening their effect by the absence of those circumstances which are found by experience to produce the contrary."*

To bring this old time but ever fresh instruction in harmony with new results, we have inserted two of the lovely productions of Mr. Ives from negatives by Messrs. Gilbert & Bacon, Phila. We do this that our readers may refer to them again and again (for they will be useful) as they peruse and study the whole of Mr. Burnet's works as reproduced by us. There is a rich store of superb pictures and diagrams in the —Burnet trip—volume. See Mr. Treat's paper on page 743.

### OUR PICTURE.

THE Centennial Anniversary of the adoption of the Federal Constitution was celebrated in Philadelphia in September last, with a great deal of eclat and enthusiasm. The ceremonies continued during three days. Doubtless everyone of our readers has read the elaborate accounts given in the newspapers. The one great feature of the celebration was the trades processions. In these Photography was not forgotten. The highest tribute was paid to our art by Mr. F. Gutekunst, of Philadelphia, who was engaged for several months in preparing his contribution to the grand pageant. It consisted of a trophy-car, elaborate in construction, glittering with burnished gold and embellished by specimens of Mr. Gutekunst's best work. Mr. Gutekunst writes:

"Our exhibit consisted, first, of a large and elaborate golden chariot, drawn by four richly caparisoned horses, attended by grooms in livery. On the sides of the chariot were displayed several large photographs from life, the central figure being that of a lady full length, of full life-size, and several life-size heads. Surmounting the same and twelve feet above the ground, appeared an allegorical group of full life-size figures representing the position photography is assuming in the fine arts. Behind a brilliant sunburst, and above the clouds, were seated two females in rich classical Greek costumes, representing respectively, painting and sculpture, with the

implements and accessories of their art. Standing between and a step above, rose the figure of a young girl, representing photography, resting on a camera and holding aloft a wreath of laurel; the whole structure being nearly twenty feet high.

"Following this came another float, exhibiting a panoramic view of the Centennial Buildings in 1876, being the largest photograph in the world; also specimens of phototypes, or mechanical photographs in printer's ink (the latest achievement in photography) and the press on which such pictures are printed.

"Our exhibit occupied the right of the 21st Division, but it is to be regretted that this department was placed so far back, as it contained some fine exhibits; and our individual display, which was conceded by competent judges, to have been one of the finest, if not the most artistic in the procession, moved into line so late in the day that it was not fully appreciated, and by very many not seen at all."

Some of the local newspapers described it as follows:

#### TWENTY-FIRST DIVISION.

*Presenting Ancient Photography and the Instantaneous Process of the Present.*—Mr. F. Gutekunst was first in line in the Twenty-first Division with a float 17 feet long, 8 feet wide, and 17 feet high, carrying six men. The sides were hung with photographs and twenty medals. On top, the figure of a young girl, in Grecian costume, representing "Photography," holding aloft the laurel wreath between sitting figures of "Art" and "Sculpture." Four horses, wearing flank blankets, worked with the monogram "G," were led by four colored grooms dressed in Continental uniform. A second float exhibited photographs taken in printer's ink on the new photo-mechanical steam press. This float was 13 feet long, 6 feet wide, and 15 feet high.—*Press.*

One of the most attractive and beautiful displays in the line was that of F. Gutekunst, photographer. The display consisted of a chariot, radiant with gilt and brilliant colors, on the top of which was presented a tableau representing the relative positions of the arts, sculpture, painting, and pho-



tography. Grouped in suggestive attitudes, the figures made a striking picture, and were meant to show the important place occupied by photography among the fine arts.

Upon the sides and rear of the chariot were exhibited specimens of the establishment's finest work, embracing life-size photos and crayon portraits, and a fac simile collection of the numerous medals and prizes awarded the firm at various exhibitions throughout the world. A tasteful decoration of banners and flowers completed this part of the display.

Following came a large float, upon which were shown numerous samples of phototype portraits, a branch of the art that has lately become very popular. A copy of one of the largest photographs ever made of the Centennial Buildings was also on this float. —*Ledger*, September 16th.

Some idea of this fine representation of our art may be had by reference to our picture. Is it not a very creditable affair? Few photographers can display such a rich collection of medals and decorations awarded in all parts of the world, and few could pose the human figures upon the top of the car with more artistic grace.

The highest praise is due to the veteran photographer, whose zeal and skill seem to increase with his years. He made the negative for our use, and the phototype prints were made at his branch establishment in Philadelphia. Nothing in mechanical printing has been done so perfect as the results of Mr. Gutekunst. We are pleased to close Vol. XXIV. No. 312, 1887, with a trophy made by the same artist who made our picture for Vol. I. No. 1, 1864.

### PHOTOGRAPHY AT THE FAIR OF THE AMERICAN INSTITUTE.

THE photo-alcoves of the 1887 Exhibition of the American Institute were filled this year, but we are free to say that in some cases they were not *well* filled. There was a predominance of enlargements, and piled upon some of these enlargements there was a preponderance of crayon. In art, it is held that curved lines are the most beautiful, but distortions are never pleasant. And there were some distortions exhibited

this year which were hardly worthy of being hung as "freaks" in a dime museum. We regret that something more is not done by the management to stimulate a genuine photographic exhibit of the first class such as was formerly seen at the fairs of this old-time Institution. We have just as many fingers as there were genuinely good exhibits made this year.

Mr. Dana made a good display in the vestibule, not only of showy theatrical subjects, but of plain home-bodies. He is one of New York's popular photographers, and his work shows that he employs all the modern improvements and appliances.

Mr. Landy's "Man Know Thy Destiny" hung alone at the left of the entrance into the main hall, and caused many a wandering visitor to halt, examine, and admire.

The Photogravure Co. made an unusually fine display of prints by their various processes, and in many colors and tints. No other firm *could* make such a display as this. It was very fine, and attracted great attention.

Messrs. Fredericks and Parkinson each exhibited a creditable collection of portrait work that was commendable for the care and skill exercised in its production. The work was well done and well placed.

Mr. G. G. Rockwood, the genial and generous veteran of Union Square, *always* exhibits. His enlargements, his plain portraits of all sizes, and especially the children's pictures, distracted the attention of thousands from neighboring excitements, and drew crowds of admirers. "Oh! *these* are Mr. Rockwood's pictures," could be heard many times an hour. They deserved all the fame they gained augmented by a hundred triplexes. There is an individuality about Mr. Rockwood's work which cannot be mistaken.

The Air-brush Co. not only exhibited many examples of soft and lovely work, but a fair artist exhibited the witcheries of the marvellous little helper to the astonishment of all who discovered that it was "really doing something."

The *versatile* photographers of New York and vicinity are Messrs. Pach Bros.; we say vicinity, because they extend their line of cameras to a chain of colleges within a

radius of one hundred miles and more. Hence their display this year consisted not only of portraits, but of college classes, ball clubs, boat crews, tennis parties, yachts, college buildings, and landscapes in great variety. Being thorough artists as well as skilled photographers, they always present an interesting exhibit, and this year they excelled themselves, if that could be.

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### NOTES FROM LONDON.

BY T. C. HEPWORTH, F.S.C.

THE Photographic Exhibition in Pall Mall is at last about to close its doors. The parent society may with truth congratulate itself upon having this year provided a capital exhibition, and one which has attracted an unwonted number of visitors. The pictures showed a high average of excellence, and if there was nothing particularly new in the apparatus department, it was because there is just now little more to invent. So much ingenuity has been exerted by inventors and manufacturers of photographic apparatus during these last few years, that ideas have become used up. How many of them must wish that they had lived in an earlier epoch of the world's history, when competitors for public favor were not so plentiful, and when there was a much better chance for genius.

I have lately been amusing myself with a little composite photography, and have obtained so much interest out of it, that I can cordially recommend the practice to others. There is really little difficulty about the matter to any photographer of but slight experience. My procedure is as follows: The subjects sit in turn before the camera upon a music stool. This stool can be readily screwed up so that the eyes of each sitter can be brought to the same level. Some sort of head rest is necessary, a chair with a high back placed immediately behind the stool will answer the purpose. The focussing screen of the camera should be marked with two horizontal lines, to indicate the place of the eyes and of the mouth, while a vertical line through them points out the position of the nose. With these precautions, and taking the full face only,

composite portrait taking is by no means as difficult as it might seem. It is a most amusing thing to ask different members of a family to sit for these compound pictures, a very peculiar circumstance in connection with which is, that the type portrait is almost invariably much better looking than any of the individual components of it. The reason of this is, that any irregularity of feature in one sitter, is corrected by the superposed image of another.

The recent introduction of steel cylinders for compressed gases, instead of the very bulky iron ones previously in use, is an innovation which photographers, lecturers, and all who are interested in the lime-light will be heartily glad to welcome. I have lately had a very good illustration of the convenience which they afford. I had four lectures to deliver last week in the north of England, in as many different towns. Instead of having to make oxygen at each place for my lime-light illustrations, I carried a bottle holding forty feet of gas. It seems surprising that that bulk of gas can be compressed into a steel bottle which measures only 30 inches in length, and 5 inches in diameter. The initial pressure is about 500 pounds on the square inch, but as the bottles are tested up to 4000 pounds, there is little risk of accident. The oxygen which I used upon this occasion was obtained from Brin's Oxygen Company, which has lately been formed in this country for the supply of the gas for all kinds of purposes. It is perfectly pure, and is obtained direct from the atmosphere. Hitherto potassic chlorate has been almost the sole source of the oxygen used for experimental and other purposes. The establishment of this new company will surely make that salt, for a time, rather a drug in the market.

A post-card recently arrived at my house, while I was absent, which gave rise to many comments. It bore the following strange device: "I send you Miss Jones's portrait—a *stripper*." The post-card was hidden away as an obnoxious thing until my return home, when I was met with the enquiries: "Who is Miss Jones, and what is the meaning of the word *stripper*?" I thereupon delivered a short extempore lecture upon stripping films, and

peace once more reigned around the domestic hearth. This pathetic, but strictly true story, will show you that the Eastman stripping films are coming into use over here. They will surely be much employed next season, by which time people will have discovered their many merits.

I have received specimens of another kind of negative support, called the Vegara film. Mr. Vegara has been the ruling spirit in introducing the Woodbury film to public notice. For some reason or other Mr. Woodbury's last conception did not succeed commercially, although no doubt in his experienced hands, and as a laboratory experiment, it was hopeful enough. However, Mr. Vegara spent about six thousand pounds over it, before giving it up as a bad thing. He has now put fresh spurs to his horse, and has brought out the "Vegara film," specimen negatives upon which now lie before me. The material needs no stripping from another medium, nor does it require any doctoring to make it transparent. I think that it has a good future before it. But I will enclose one of these negatives in my letter this month so that you may, if you feel inclined, give your readers a more valuable opinion about it than it is possible for me to offer.

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## FINE ART AND PHOTOGRAPHY.\*

BY A. J. TREAT.

IN a book published in 1867, by Sampson, that writer on art said: "Photography may be practiced merely as a trade, and yet it may rise to the highest dignity as an art." This foretold the mission and the future of photography, for it concludes that unless the photographer be possessed of taste and knowledge, his work is merely that of a mechanic, skilful according to his successes.

The long-disputed question as to whether a photographer is an artist and photography an art, depends considerably upon what is art, and what is an artist. The photograph of a poorly selected landscape is not a picture, and its maker is far from being an artist. Nor is that person an artist whose painting is poor in conception and faulty in

treatment. Fine art is described as a general term applied to certain methods for embodying the beautiful in human productions. The systematic application of knowledge to secure a result that will awaken the aesthetic emotions. Therefore, whoever applies knowledge for the purpose of producing a result that is beautiful, and which is the creation of something that did not before exist except in the mind of the designer, is an artist in the fine arts. If the photographer succeeds in doing this he is an artist, providing the technical treatment of his conception is in accordance with the established rules of art.

Photography really belongs to both the fine and the mechanical arts. To the former when used for the production of an ideal. To the latter, when beauty is secondary, and usefulness the first consideration.

What art and artists have done for photography, photography has endeavored to repay. From her experience of a thousand years art has taught photography the secrets of composition, and the values of chiaroscuro and color. As a teacher, photography has taught the truth of action, as shown in the movements of men, animals, and water. Has blinked at the clouds, reproduced them perfectly, and taught artists what they do not apparently all appreciate—that clouds are transparent and rounded masses, and cannot be truthfully shown by smudges of paint upon a flat surface. As a servant, photography has made it possible for every painter to own copies of the pictures by great artists. Has put before him for the purpose of study or admiration the celebrated canvasses of Paris, Munich, or London, in better form than possible by hand copying and cheaper beyond estimate.

When the photographs of landscapes were first shown it was said that they would supersede landscape painting, but time has proved this as far from true as the same belief regarding the displacement of the portrait painter by the portrait photographer. While the discovery of photography in color would be a giant stride in the progress of photography, even that would not displace the painter. The reason why is apparent to any one who will closely study the work of any great artist. Where could a pho-

\* Written for *Mosaics*, but received too late.

tographer find a head the counterpart of the "Mater Dolorosa," or one that would answer for the face of Christ, as Munceasy has shown it to us in his magnificent painting of "Christ before Pilate." While he was hunting the world over for his subjects, an artist would have painted them by using a model as a suggestion. And as with figures so also with Nature. The photographer at best can make but few changes, but the artist can leave out or put in at pleasure; and this is, and always will be, the difference between their work.

The fact that a boundary line is established, past which the photographer cannot go, rather helps him, because it places his work within defined limits. Rarely is a landscape so well arranged in its different parts but that the addition or removal of certain things will not improve it. To the painter this is but the repetition of everyday's work; to the photographer of landscapes and marine views, such changes in the view itself are almost impossible. The painter idealizes; the camera deals with facts. Whatever is before the painter is his suggestions, to which he adds his ideas, and from which he builds. The camera is mechanical, and can only take what is before it. Because of this difficulty it is imperative that the photographer select with even more care than the painter. To the extent of selection his work requires as much knowledge of what is beautiful, and the reasons, therefore, as that of the painter, and more care in whatever changes he may make, because what is done by the camera cannot be undone.

One of the greatest drawbacks to the ranking of photography indisputably as a fine art, has been the slavish adherence to the silver print on albumenized paper. With the gradual departure from burnished surfaces and the adoption of printing methods that give breadth without a polished surface, comes increased admiration and appreciation from the artistic community for the work of the photographer. The glaze of the silver print robs it of many artistic qualities. Brilliance is obtained, but at the expense of depth. Shadows should have depth and transparency, but never brilliance. The glaze of the silver

print detracts from it the very thing that it should be the aim to set forth—the feeling space beyond the surface of the paper. It is true that oil paintings are varnished, but this is not done for the effect of glaze, but to preserve the paint. Gum arabic is sometimes added to the pigment by some water-color painters, that transparency will be had in the shadows, but the effect would be finer were it left out, and transparency obtained by legitimate coloring.

An etching has more depth of shadow and greater breadth of effect than perhaps any other production of art. It largely owes this effect to the entire absence of glaze and the soft effect given by the grain of the paper, because it consists of the different gradations of one color; it is the art production most like photographs. The effects of breadth in a good etching, and the harmony between the high lights and shadows, should set an example to the photographer, who should use those methods that will give like results. That this is being gradually done is shown by the increased number of photographic productions made upon paper without polish. Even the heretofore despised—or at least unnoticed—blue print, is coming into use for printing those figure studies or landscapes to which its color is adapted.

The criticism is often made that portraits are retouched to death. The truth is that the public demands it, and the work of the photographer necessarily responds to the demands of his patrons. When people are educated to the point, that they will ask for a likeness instead of a portrait, and be content to receive it, then will the production of "marbelized" faces cease. The vignette is also abused, and instead of being used for ideal heads, has been reduced to the ranks, and is constantly employed without regard to fitness. Fancy the head of Carlyle vignetted! Yet this has been done, and with a result to be expected.

Portrait photography is a slave to the demands of a captious public. Only when it breaks loose from its influence does it show that it can be made an art.

In his charming book *Thoughts about Art*, Hamerton mentions the valuable suggestions contained in a photograph of the sea.

He speaks of the silhouetting of a pier and the lack of detail at the corners of the print. As this was in 1862, it would be interesting to read his opinion of an example of modern photography: Mayland's fine sea views, for instance, where the water is either lashing itself and beating and churning against the rocks, under the influence of the storm; or, in calm weather, gently washing the sandy beach and soft clouds are lying in the distance. In either case the focus of the image extending to the edge of the picture and proper balance existing throughout.

As Mr. Hamerton also criticized the attempts made at that time to introduce figures into photographs of landscapes, it would be interesting to photographers to hear one so well versed in art give his opinion of one of Mr. Robinson's best studies, such as "Wayside Gossip." The studio picture by the same artist, "After the Day's Work is Done," would furnish him one of the finest specimens of art photography has given to the public. Being printed by the platinotype process, the print is, of course, without polish, and of a rich warm brown, with great transparency and softness in the high lights. In conception and reproduction there is nothing to detract from its artistic qualities.

Some painters have sneered at photography, and claimed that it would never be anything but mechanical. Some photographers have been over-enthusiastic, and thought that photography would supplant the work of the painter. The spirit of the former is unprogressive; that of the latter too confident. The painter who would refuse the suggestions contained in the meanest photograph is blind. The photographer who would not learn from the experience of painters is both blind and stupid. The work of the camera can never eclipse the work of the brush, and, realizing this, the photographer is content.

The successful photographer of the future will be a student of art. He requires a knowledge of anatomy, necessary for the proper pose of the figure; of lighting and draping, that the subject be properly placed and dressed. He should have a knowledge of composition, must understand the value

of breadth, the qualities of unity, variety, and harmony, and the rules that govern them, to the end that whatever work is presented will please the eye by being in accordance with established rules. [And these points and "established rules" are pointed out in the clearest manner by Mr. Burnet, in his works just republished.—Ed. P. P.]

Above all, the photographer must have an appreciation of the beautiful and a knowledge of æsthetics, or the science that governs taste. If his pictures are well conceived and his ideas carried out according to the rules governing art productions, he will receive the reward he merits. But he must remember that those rules are unbending, and the fact that his method cannot overcome certain difficulties will not be accepted as an excuse for not complying with them. Whether he is to rank as an artist, and his productions as fine art, will depend entirely upon the quality of his work. The relation of photography to the fine arts should not be measured so much by the method employed as by the result obtained.

SAN FRANCISCO, CAL., November, 1887.

### NOT A DEVELOPER.\*

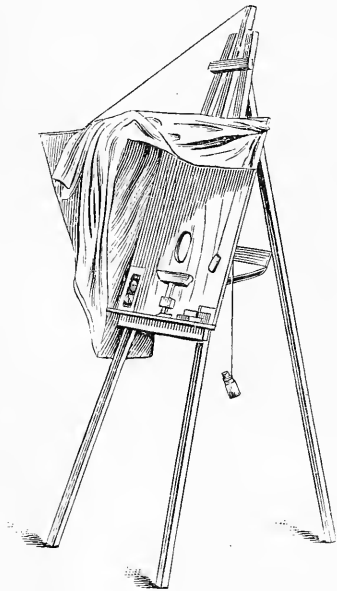
BY J. C. SUNDERLIN,  
Flemington, N. J.

I WILL give the readers of *Mosaics* (through the kindness of our provident editor) a description of two articles which we find an oft-repeated convenience in our gallery.

Our retouching stand is different from anything we have seen; though we have seen one in some respects *similar*. The frame-work is similar to an artist's easel, made very light, and the space where the picture would naturally be, covered with thin board. The centre of this board has an opening cut in it, of any desirable size, covered on the outside with tissue-paper. Just under the opening on the inside is a T-shaped piece of wood, upon the horizontal part of which, and over the opening, rests the negative to be worked; the per-

\* Written for *Mosaics*, but received too late.

pendicular part passing down through a slot having a set screw, thus to regulate the height of the negative before the opening. Under the opening, upon the backside, is

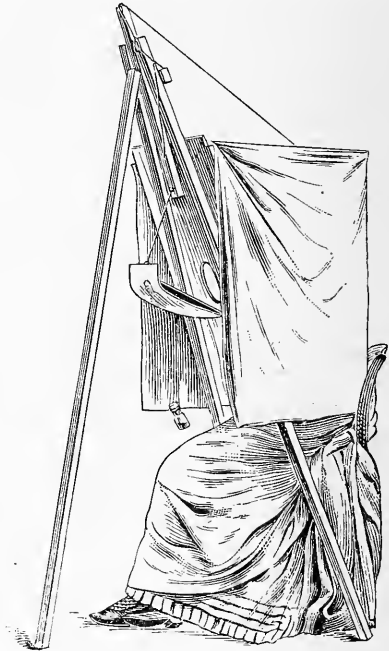


hinged a thin board (or it may be thick card-board), through the outer edge of which is fastened a cord, which passes up through a screw-eye placed in the middle upright piece of the easel, then passing along horizontally to the right, passes through the board which covers the easel; upon the end of this cord is attached a weight sufficient to hold it at any given height. The hinged board to which this cord is attached, is intended to support a reflector (which may be a looking-glass or bright piece of tin; any thing to throw a stronger light through the tissue-paper before the negative).

At the top of the thin board covering the easel, on the front side, is hinged a light frame, to the outer end of which a cord is fastened, which runs to the top of the easel, to hold said frame in a horizontal position while the stand is in use; this frame to be covered with some opaque material, and with a curtain around the three sides of the same material to exclude the light from the eyes of the retoucher.

The advantages of this stand are obvious. It can be readily moved to any place, under

the skylight, or any room where there is a convenient light, either over-head or on the side, because it supports itself (which is what photographers cannot all say of themselves),



and it can be collapsed and set away behind a screen or door, any place out of the way. Of course, little receptacles can be attached, according to the taste of the retoucher, for holding pencils, brushes, opaque, etc.

The other article to which we referred is a lotion for rough or chapped hands. It is our own invention, and has proved a great blessing to us, and we doubt not but that it will to others.

It is simply two drachms of acetic acid and two drachms of glycerine, shaken up in eight ounces of water. After washing and wiping the hands, *while yet damp*, fill the palm with this, and then rub well over the hands, letting it dry in without wiping, and the hands will immediately become soft and smooth, without being sticky.

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CAMPHOR. — Mr. H. R. Proctor asserts that a small quantity of camphor in the solutions of bromide or citric acid prevents mould.

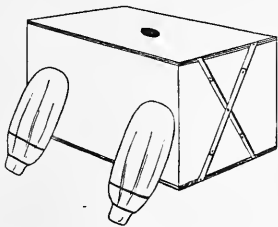
## DOTS FROM THE SUNNY SOUTH.\*

BY P. E. CARRIERE,  
New Orleans, La.

YOUR card asking me to contribute to *Mosaics* for 1888, has been duly received. I am much flattered by the honor you have made me, but would it not be a good deal of pretension for an amateur of three years experience in photography to intrude himself among eminent writers? However, it is my duty to answer to the call of my professor, *Photographics*. So to please you I will do all I can, and send you the following "dots," which I hope will aid some amateurs, if you think them worth mention.

For changing plates, I send a design of a very simple apparatus, very easy to make. Take two pieces of white pine or poplar, 12 x 22 inches,  $\frac{1}{4}$  inch thick, for top and bottom; the top has a hole in the centre 2 $\frac{1}{2}$  inches in diameter, closed with a piece of ruby glass fixed on the inside; two thicknesses of black canton-flannel, 66 inches long and 16 $\frac{1}{2}$  inches wide; the two extremities are well sewn together; a square opening, 4 $\frac{1}{2}$  x 10 $\frac{1}{2}$  inches, is cut on one side, two inches from the top, to make the window; a piece of ruby material, 6 x 12 $\frac{1}{2}$  inches, is laid on this opening to shut it. Two light wooden frames, 6 x 12 $\frac{1}{2}$  inches (the inside measurement being 4 $\frac{1}{2}$  x 10 $\frac{1}{2}$  inches), are made; one is laid on one side of the window, the other is nailed to it on the

FIG. 1.



Box for changing plates, showing position of sleeves, bracket, and ruby eye-hole.

other side, so that the ruby and black cloth will be nailed between the two frames, excluding in this way all white light. The other side of the cloth has two sleeves, large

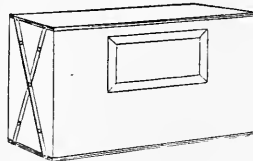
enough to insert the plate-holder, box of plates, arms, etc.; the ends are provided with rubber bands, three inches apart, to prevent light from getting in while the arms are inserted; The cloth is now tacked all around on the edge of the top and bottom boards, forming in this way a box. A bracket is fixed on each side, so as to open or shut the apparatus; each bracket is made with six pieces of walnut,  $\frac{1}{2}$  x  $\frac{1}{2}$  inch thick; four pieces 4 inches long, the other two 12 inches long; they are riveted together at the ends, as shown in the design (Fig. 2).

FIG. 2.



Bracket for closing or opening the box like an accordion.

FIG. 3.



Side of box, showing position of ruby window.

Beginners are much puzzled about exposures. I think the following will help them:

A piece of calico, striped black and white, is stretched on a wooden frame; the letter V is painted (black) in the centre to distinguish top from bottom. This frame is put in position, just far enough to cover the plate (a 5 x 4) to the edges. A sharp focus is taken, the lens capped, the smallest stop inserted, and the plate-holder put in position; the slide is drawn out one inch; an exposure of one second is made, everything being in position as before, excepting the slide, which is drawn another inch; another exposure of one second is made; and so on the operation is repeated until the whole

\* Written for *Mosaics*, but received too late.

plate is exposed. The plate will have then eight different exposures, which will give after development a graduated scale of exposure. When dry, the plate is marked (on the film) "Exposures with stop No. 1," and each scale is marked from one to eight seconds, beginning on the left. The same experiment is repeated on as many plates (of same brand and number of sensitometer, of course) as there are stops for the lens. This will save plates in the future.

I also recommend beginners to use this economical way of developing plates. Seed developer is used. Two 8-ounce bottles, with wide mouth, are provided; one, clear glass, and the other, dark; in the clear one put:

Water . . . . .	5 ounces.
Solution No 1 (pyro) . . . . .	$\frac{1}{2}$ ounce.
Solution No. 2 (soda or potash) . . . . .	$\frac{1}{4}$ "

In the dark bottle put:

Water . . . . .	5 ounces.
Solution No. 1 . . . . .	$\frac{1}{2}$ ounce.
Solution No. 2 . . . . .	$\frac{1}{2}$ "

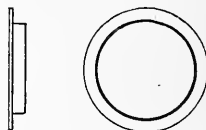
Pour on the plate enough of the clear-bottle solution to cover it. If the high lights appear immediately, this solution will do; but if the high lights appear in about a minute, throw this solution back in its bottle, and use the dark-bottle solution to finish development. On the other hand, if after a minute's time the high lights should hurry back, the dark-bottle solution is used quickly. Development is complete when the image is very dark gray. Fix ten minutes. In this way many plates can be developed, saving waste of solutions.

The amateur who is fortunate enough to own the very perfect developing lantern, "multum in parvo," made by Mr. Carbutt, should devote some evening to making lantern slides, by contact printing, by the light of this lantern. They are easy to make, and far superior to albumen prints. He can exhibit them to his friends, using the same lantern as a magic lantern, and in this way:

The back slide of the lantern has a hole,  $3\frac{3}{8}$  inches in diameter (shut with a light-tight tin cover when used for developing). The lamp is put on a board, and laid on the bottom of the lantern, so as to move it back-

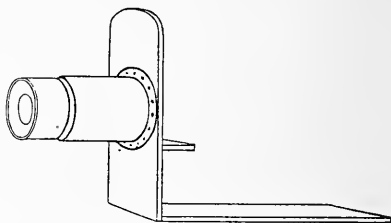
ward or forward, left or right, to get the centre light on the condenser. The lantern itself is on a board having on its end an upright board to hold the condenser, lens, and stage. The condenser is  $3\frac{1}{2}$  inches in diameter; it is fixed in a tube,  $3\frac{1}{2}$  inches in diameter and  $3\frac{5}{16}$  inches long. Another tin tube,  $2\frac{3}{8}$  inches long, telescopes into the other, having at its outer end a double convex lens,  $1\frac{1}{2}$  inches in diameter, placed in the centre. The tube carrying the con-

FIG. 4.



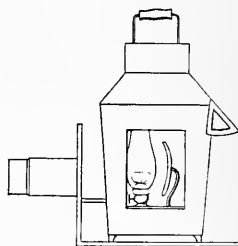
Tin cover to shut opening in back of lantern.

FIG. 5.



Platform on which the lantern stands when used as a magic lantern.

FIG. 6.



The magic lantern.

denser must have a flange made of tin, and soldered to it, so as to fix it to the board. The stage is  $\frac{1}{4}$  inch wide. The designs will, I hope, make clear my ideas (Figs. 4, 5, and 6).

I am making now with the detective camera an apparatus to enlarge microscopic slides, so as to show them in the magic lantern.



## AN OLD PRINTING PROCESS WITH A NEW MODIFICATION.\*

BY REV. W. H. BURBANK,  
New York.

Most of the old silver printing processes have been superseded by albumen paper, and are now worked only by a few experiment-loving amateurs. Of these long-forgotten worthies of the youth of photography I have made the acquaintance of the most distinguished, and with the kind permission of the editor of *Mosaics*, I take great pleasure in introducing to the photographers of the present year of grace, Taylor's white-lac process in a new dress.

The process is based on reactions which differ *toto cælo* from those in common use. In the original method the two following stock solutions were made up:

### No. 1.

Water . . . . .	10 ounces.
Borax . . . . .	180 grains.
White-lac . . . . .	360 "

### No. 2.

Water . . . . .	10 ounces.
Phosphate of Soda . . . . .	180 grains.
White-lac . . . . .	220 "

The lac is finely pulverized and then well shaken up in a flask containing pure water to remove any easily soluble substances in the lac. It is then filtered and dissolved in the given quantity of water, which is placed in an enamelled iron kettle and slightly warmed. The lac is then introduced and the water kept at the boiling-point for two hours, replacing the portion lost by evaporation.

The mixture is then allowed to settle, and the clear portion is decanted into the filter.

The borax and the phosphate are dissolved before the lac is introduced.

The two stock solutions are used alone or mixed, according to the tone desired and the strength of the negative. A mixture of five parts of the borax solution to three parts of the phosphate seems to give the best results.

Plain paper is immersed for twenty seconds in this mixture, and hung up to dry.

It is then sensitized by floating, from three to four minutes, on a forty to fifty grain silver bath, and when dry, again immersed in the lac solution.

Paper prepared in this way will keep good for a long time and the prints will need no preliminary washing; and a good tone, ranging from a dark purplish-brown to a beautiful sepia, may be obtained without the use of the toning bath.

The prints should be printed deep, and are placed without washing in a 1 to 10 solution of sulphocyanide of ammonium, in which they are allowed to remain five minutes, when they are transferred to a 1 to 4 hyposulphite of soda solution, and fixed. The usual washing for elimination of the hypo follows, as a matter of course.

Prints on paper prepared with the phosphate solution alone, or with a large proportion of this salt, will strike a good tone without the sulphocyanide bath.

The appearance of the prints will be greatly improved by varnishing the backs with a ten per cent. alcoholic solution of white-lac, which softens the image and increases its resemblance to sepia work.

The above is a description of the original process. My own modification consists in adding gelatine to each of the stock solutions, and the use of a salting bath of chloride of ammonium and lactate of magnesium. 100 grains of swelled gelatine are dissolved in each of the stock solutions, and the paper is immersed as before. When dry, it is immersed or floated for two minutes on the following solution:

Chloride of Ammonium . . . . .	10 grains.
Lactate of Magnesium . . . . .	10 "
Water . . . . .	1 ounce.

and when dried sensitized on a sixty grain silver bath, and treated as before.

Paper prepared according to this modification gives prints of a richer tone and greater delicacy than the original method, owing to the presence of gelatine. The use of the salting bath is not indispensable.

For large prints either the original or the modified process gives wonderful results of great artistic merit, far surpassing prints on albumenized paper.

Air-bubbles must be removed from the

\* Written for *Mosaics*, but received too late.

paper while in the solutions, and the silver bath should be filtered each time it is used.

### DISTANCE AND ANGLE OF VIEW.\*

BY R. D. GRAY,  
New York.

THE view photographer is so seldom allowed to choose his distance between the camera and the object to be photographed that it may be well to examine the subject of distance from an optical point of view, and note the phenomena as it occurs to the eye, and as it appears on the photographic plate.

A landscape viewed through eighty miles of atmosphere may show distinctly to the eye, rock fissures, and mountain peaks outlined against the sky, but they are too faint for the photographic plate to distinguish between them and the sky, the differences in light intensities being nearly absorbed by the atmosphere. In order to photograph this scene it is necessary to approach it until such quantity of atmosphere has been displaced as to make prominent its most attractive feature. This *most attractive* feature in a picture will probably always be a matter of opinion; one may prefer broad and soft effects, while another strives to produce brilliancy, the latter quality being most prominent in the negative that has been made with the least intervening space between camera and object. The disturbing influence of atmosphere to the light traversing it, is not only true of great distances, but of short ones as well, as ten miles is to one mile, so is ten feet to one foot. If you desire to penetrate the starch on a ladies face and anticipate next summer's freckles, use a lens of short focus, approaching very near; or if you wish to soften the marks of time, remove your camera to the most remote part of the studio, using plenty of atmosphere and a long focus lens. The same applies to copying and making enlargements. A lens that will allow the shortest distance between the print or negative to be reproduced, and the image of it, will give the most detail, and the most brilliant reproduction.

\* Written for *Mosaics*, but received too late.

We observe in photomicrography that the best results are obtained by the use of objectives of exceedingly short focus in contact with the object, using a comparatively short reach of bellows. But for plain photographic work, the nearness to which an object may be approached, is, of course, limited by perspective, or the angle drawn from camera to the marginal limits of the view. We are all familiar with that apparent distortion of objects situated in the margin of pictures made with a lens of great angle; the foregrounds appear too large when the picture is examined from a greater distance than the focal length of the lens with which it was made.

This strange truth is often misunderstood, and the lens is condemned as drawing incorrectly, while in reality the drawing is more exact than a draftsman could make it.

Skilful artists take advantage of this, and favor the lean and dwarfy by placing them in the margin of the picture while they limit those objects of well-known size and shape to a position nearer the middle, and not too near the camera.

There are photographers who do not understand that the angle of view is governed by the proportionate lengths of the plate and the focus of the lens used with it. They are surprised that a wide-angle lens does not show a wide sweep of country on a plate that is, perhaps, shorter than the focus of the lens used.

The successful operator when working in the field does not limit himself to one objective, but is provided with three or more lenses of different focal lengths to be used on the same size plate, as more or less of the subject is desired, or, as the distance will permit.

### A SUGGESTION FOR MORE ART AND BETTER PRICES.\*

BY E. K. HOUGH,  
Fredonia, N. Y.

WE are often advised to use more art in photography, and thus enable us to charge better prices. But there is no definite line proposed, only to do all things better in a general way, and charge more for it. But

\* Written for *Mosaics*, but received too late.

the good and bad shade into each other so gradually in the various classes of work, that it is difficult to say where the bad ends and the good begins. There is no distinct dividing line.

They are all portraits with no motive but to show likeness; some are good in one way, some in another. Some are better lighted, some better retouched; some mounted more tastefully; but there is no distinct quality or intention that separates them from the mass, and gives them a distinct character of sufficient importance to pass a higher range of prices thereon as a *separate class of work in the same gallery*.

The idea of two prices seems reasonable, but it has often been tried and failed. One gallery can maintain a high grade of prices, and another a lower grade, successfully, but experience proves it next to impossible in the same gallery. Yet many operators are conscious of being able to do better than their plain every-day work at the regulation factory prices. If there could be devised any reasonable excuse for giving more attention and skill, and charging more for it, and if more is charged, it should never be a little more, but a good deal more; double, at least, to make it distinct and important, so that your best customers will think they are paying for something valuable, and can speak of it with pride, and everybody can see, or think they see, the reason why it costs more.

My suggestion is to make *named pictures*. Have a motive, a purpose in pictures, and give them a title, and print it under each picture, as the titles of engravings are printed, and *make the titles of these pictures give a clue to the thought that actuated the artist in making them*. Everybody wants to know. They ask "why did he make her look up?" "What did he make her look down for?" and so on, until the usual conclusion is, that the artist had no special purpose, and it just happened so.

But the announcement of a definite purpose concentrates the attention, and calls into play the intellect which always likes to find evidence of intelligent thought. It gives a chance for intelligent judgment. Instead of wasting criticism in flippant guesses at the artist's intention, they take him at his word, and judge him accordingly,

and even if they judge that he has failed in his intention, they respect him more for having had a motive in his work. And, in the majority of cases, having the clue to the underlying thought, they will, by study, come into sympathy therewith, and acknowledge the artist's skill.

A thousand titles will suggest themselves, for single heads or figures such as "Faith," "Hope," "Patience," "Happy Thoughts," "Pleasant Memories," "Contentment," "Resignation," "Merry Musings," etc.; and as, of course, the motives have to accord with the style of face and character of person portrayed, and some are persistently sad, a motive in accord can be chosen as an excuse for the sadness. For, as we know so well, everybody wants to be thought happy and fortunate, and to appear so in their pictures; but if they cannot, the next best is to have it appear that they did otherwise on purpose, and not because they could not help it.

Now, some will say this is impracticable, because it will make too much trouble. And do you then expect to get double price without extra trouble? if so, you may "go on forever," like Tennyson's "Brook," and never "git thar." Some may say it will be too great a tax upon invention, and will soon run into a round of hackneyed names and subjects, and become stereotyped.

I answer, that it will become a stimulus to invention; and in a definite direction, with a tangible purpose in view to study for, and the whole diversified range of human nature to work in. With this in view, suggestions may be got from every author, every poet, and every painter, and the study will quicken every artistic instinct into life, and give scope to every ambitious artistic aspiration.

Doubtless, children will be found the most available material to work with, and a few successful ventures hung on your walls will be a standing challenge to papas and mammas to have their "darlings" taken in the new style, with some appropriate title, and, perhaps, a line from some poet gracefully praising or describing the little one's grace and beauty.

Fond parents will stand a great amount of flattery in their children, and if reduced

to a system, and skilfully done in the way I have indicated, it can be made to pay, and that is what we want. But to pay well, it must be taken up by prominent artists, and in sufficient number to make it as fashionable as the Rembrandt was, and then all rich and fashionable people will have them—because it is the fashion. There is sufficient in it to create a fashion, and it is in a direct line of art progress, for it is simply systematizing the *genre* picture, and running it on business principles. What think you?

### A FEW EXPERIENCES.\*

BY IRVING SAUNDERS,  
Alfred Centre, N. Y.

IN copying a ferrotype which has the varnish scratched or marred I place it in contact with a piece of *plate* glass upon which I have dropped a few drops of pure white glycerine, making perfect contact and expelling all air-bubbles. Photo-prints may be copied by soaking in water and placing in perfect contact with plate glass with much less grain, or either may be immersed in a small bath made of plate glass and filled with water. It is necessary in copying of this kind, or a daguerrotype, to have every thing dark in front of camera and lens, or it will be reflected back from the picture upon the sensitive plate. I think one great cause of foggy negatives comes from allowing reflected light from objects which ought to be excluded from the view of the lens to reach it. Use a good long cone on the hood of lens lined with dark-brown or black velvetine. The disastrous results are most perceptible in Rembrandt lighting where the sitter is placed against the side light with only a small background behind.

My developer I make by dissolving

Carbonate Soda Crystals . . .	3 oz.
Sulphite Soda Crystals . . .	6 oz.
Water . . . . .	64,

and use by adding in warm weather to 1 oz. soda, 2 oz. *cold* water, and dry pyro (Scher-*ing's*) from 2 to 3 grains to the oz. of developer. I measure pyro in a wooden mustard

\* Written for *Mosaics*, but received too late.

spoon made to hold four grains dry pyro when pressed level against side of can. In winter I use soda solution, 1 oz., warm water, 1 oz.

The best results are obtained when developer is neither too cold nor too warm; and by making soda double strength it can be easily managed by the temperature of water added. Have a handle to the pan like dust-pan soldered on end of it, as most of the staining of fingers comes from handling of the pan.

### DO NOT BE DISCOURAGED.\*

BY W. B. GLINES,  
Hutchinson, Kan.

IF you are making work which you know is not as good as "neighbor Smith's," do not be discouraged, and try to blame your lens, your light, or your plates, *but look to yourself*. You will find you are not giving your lens, light, or plates, a fair show. You will find you expect too much of your lens. You cannot make a *good* negative, no matter how fine your lens, unless you are watchful and careful in your posing and lighting. You will find you are not developing your plates with enough "bromide of brains," as friend Pray puts it. Use one make of plates, get used to them, and *stick to them*.

If you cannot afford a Dallmeyer lens, buy what you can. Because "neighbor Smith" has a high-priced Dallmeyer, don't give his better work all the credit on account of that, for, as our friend McMichael says, "good work can be made with any lens." It is the *man* back of the lens. It is his power to pose, light, and develop, and not his lens alone. I will admit, the lens is a great power to help; just as a carpenter is able to do a piece of work much easier with one tool than another; still he can accomplish the result, and the result be as fine in one instance as the other. Do not think that if you only had this or that, you could do as fine work as Smith. No! If you would equal and *excel* Smith, you must not be discouraged because your place is not as finely furnished, and your lenses, etc., as high priced; but you must try to improve your work. Study each negative and picture you

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make; see where you can improve the next. With your improvement comes your increased trade, *then* comes your fine furniture, fine lenses, etc. Do not be discouraged, but go in to win, and you will "finish first" in the race.

Never allow yourself to think your work is the best in town, or that it is as good as can be done; but study other men's work, and see wherein you lack. Go to the conventions, and learn of others. Buy and *read* all the good works on our art. Do not be discouraged if you expect to improve and win.

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### THE REASON WHY.\*

BY B. T. RICE,  
Frankfort, Kan.

THE reason we make pictures for \$2.00, \$3.00, and \$4.00 per dozen is because all our neighbors do it; and if we ask \$5.00 and \$6.00 for them we don't get much work; and if we think we do better work, and tell the people as much, they are probably offended, and leave your place and go to the other fellow's and get their work done. There are none of us that like to see our neighbors get ahead of us, and if, by cutting prices, they begin to get our trade, then we feel like cutting (I was going to say their throats) down prices too.

I think this is the principal reason of low prices; one comes down, and another has to lower prices, and prices once down it is a hard matter indeed to get them up again. I can't see why photographers will persist in such absolute foolishness as to thus lower their work and themselves, too; for any one, if he has any manhood at all, will feel better, and put a great deal more *feeling* in his work if he is getting a good price for it. No matter how deeply one may be interested in the artistic side of photography, the knowledge that he is getting well paid for his time and experience, adds a good deal of zest to his work. But, as I said before, the people are hunting for bargains, and if you don't come down, they will go to the other fellow who does, and as you have no other way of making a living—down you come.

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### HOW I MADE A "FINDER."\*\*

BY W. C. STINE,  
Sycamore, Ill.

HAVING a Darlot focussing glass, I procured a round cardboard pill box, which just fitted over the end of the tube; a round hole was cut into the lid of the box with a hollow punch, to be had at any tinner's, and a piece of ground-glass cut to fit into the lid. The whole placed over the tube, made a finder equal to any, at a very small cost. To fasten it to the camera, remove the ring and screw from the side of the tube, and a brass spring similar to those of other finders, can be made and screwed to the tube. Focus as desired, and place on top of camera. In this way a focussing glass and finder can be had at will.

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### QUERIES AND SUGGESTIONS.†

BY O. S. MORTON,  
Richmond, Va.

YOUR request that I should write something for "*Mosaics*" suggested the queries, first, whether one who needs further instruction himself should presume to write for others, and, second, what could one say about photography which has not already been said, as well, or better, by somebody else? There are some things, however, which will bear repetition, and as some readers of *Mosaics* may be passing through an experience—perhaps I should say ordeal—similar to my own at the beginning, it may prove helpful to enter a plea for a more liberal use of *time* and a chemical compound, which is very cheap, a fine "restrainer" and to which (as there may be something in a name) let's give a big one, and call it, the protoxide of hydrogen. Had some one been at my elbow to see that I profited by this hint, when I commenced to develop plates, the mortality list would not have been so fearful. Mixing up the "normal developer" I would pour it on and rock the dish in regulation style, to see the image quickly come and as quickly go to fog. Or, to see the picture come up nicely, to be almost obliterated in the hypo.

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If, in the first case I had poured into the normal developer two or three times its bulk of protoxide of hydrogen, no matter how uncertain the exposure, no harm would have resulted. If the plate had been overexposed there would have been no flash and fog. If underexposed, the developer could have been strengthened *ad lib.* In the second case, if I had used more time and allowed the development to proceed sufficiently far, I would have saved many a plate. Therefore, I would repeat the suggestion, use more time and water.

And, now, will the professionals permit some queries and suggestions? Cannot some organization, say the P. A. of A, at its next meeting pass a recommendatory resolution or "issue a decree" that thereafter whenever the word "ounce" is used in a formula it should be understood to mean 480 grains (or 437 as might be agreed upon) only and invariably. Under the present arrangement, or disarrangement, a formula calls for an ounce of this or that, and who can say whether  $\frac{1}{12}$  or  $\frac{1}{16}$  of a pound is intended?

Again, if photography be indeed a *science*, cannot and ought not, certain practical questions to be settled beyond controversy, so far as this can be done by an official dictum; such as, which produces the better results, a small stop and long exposure, or large stop and less time?

Whether drop-shutter subjects should be developed with a strong developer or a diluted one?

Whether there be superiority in the alkaline pyro over the ferrous oxalate, and, if so, in what it consists? etc. If the P. A. of A. could not reach a pretty unanimous vote on the points raised, could not they refer the questions to an "Experiment Committee" composed of painstaking men, who would thoroughly test and digest before reporting?

## PROOFS, THEIR USE AND ABUSE.\*

BY T. B. CLARK,  
Indiana, Pa.

THE subject of this article has been no doubt "A Thorn in the Flesh," with a great

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many of the craft. The giving out of proofs is not very generally adopted among photographers, on account of it placing their work at a disadvantage, and also the liability to destroy confidence among their patrons, making results appear like "chance." While I do not advocate its adoption, "proof-showing, like a great many other evils, having crept among the craft, and have to all appearances come to stay, we might as well make the best of it. To affect this evil, and as a recompense to the photographer for extra labor, he should make an extra charge for all sittings, when proofs are ordered, and when this is properly understood among his patrons, they will be perfectly content with one sitting. There will be some patrons who will insist on having proofs, nevertheless, then the evil becomes a matter of revenue to the photographers, as it should be, for a photographer should be paid for his time, services, and waste of material, as a physician, dentist, etc. The sooner photographers wake up to this fact the better. Submitting proofs, without a certain amount of restriction, is liable to give one a great deal of unnecessary labor. The perfect ignorance of a certain amount of patrons is inexcusable, a great many ask for proofs, without any thought of resitting, then expect something to look at, "just to see how it is going to look." Then, continuing in the same breath, tell you, you *must have them done by next Tuesday*, and not to disappoint them, for it would be "too mean." They ask for proofs, *just because you have taught them the habit.*

To the class of trade, one receives in small towns, where, from two to three dollars, is considered a fair order, this habit becomes tiresome. A great many photographers in their endeavors to please their patrons, fall unconsciously in this habit of giving proofs, and it must needs give them a great amount of unnecessary labor. To such I would say, *Stop!* Is not your service deserving of something? If so, have the courage to demand an extra charge. You will enjoy just as much respect and confidence from the public, and will add a few more years to your life.

Let all try it, and keep "Our Banner" out of the dust.

**CURTAINING THE LIGHT.\***

BY A. MCFARLIN,  
Groton, N. Y.

BELIEVING this important part of photography most neglected at present, from the appearance of work produced by so many photographers, and also judging from the many galleries I have visited during the past season, I thought a few plain hints might prove valuable, especially to the less experienced workmen.

Many are using but one set of curtains, and we have even seen galleries where one single large curtain covered the entire top light.

How can anyone control such a light with any degree of artistic effect?

Now what I would recommend is two sets of double curtains for top and side lights; the set next the glass to be white. These can be more than a yard wide, if so desired, and may be used in one piece reaching across the light, lapping over each other properly, so as not to interfere.

Then under these—say, a foot or more—have a set of curtains made of cambric, drab in color, or slightly of a brownish shade. This comes less than a yard wide, and each curtain should be made in two pieces, so that it can be opened from the centre when necessary.

With these you have full control of the light, being able to shut out or let in light just when you wish it.

I cannot describe just how to light your subjects, as all photographers seem to have a peculiar way of their own; but anyone with a moderate degree of taste and skill can, after a little practice, secure a great variety of artistic effects, giving credit to the photographer and making operating a pleasure.

It is a task which many dread, but one day's work and a few dollars would, I feel sure, repay the small investment ten times over in a single year.

I speak particularly of the color in the dark curtains, as I do not favor blue. A certain amount of the shade of the latter being actinic, you cannot rely exactly on your

lighting; where with the color named you can make your lighting just as you want it and not be disappointed in the effect, especially if you have control of your plate.

Another important part is not to use soft wire with which to hang the curtains; use spring brass wire. Cut it the proper lengths, heat the ends red, and suddenly dip in water; this will soften them so that they will not break when fastening, and a neat job can be done. Draw up tight, and they will not sag and work so disagreeably as we often see them.

Sew rings on curtains about seven inches apart; also see that the space between the wires is just right, so the curtains can be moved nicely.

Many are unfortunate enough to have west lights; for these I would recommend coarse ribbed glass for sky-light at least, with curtains well lapped. This will help greatly to keep out heat and make the strong afternoon rays manageable.

Now, if you are using a light poorly curtained and making poorly lighted pictures, with one side white and the other black, consider whether it would not be greatly to your advantage, as well as to your customer's, to see to it at once, remembering that a put-off job is seldom ever done.

**STATE ASSOCIATIONS.\***

BY W. J. HILLMAN,  
Richland Centre, Wis.

BROTHER PHOTOGRAPHERS, would it not be a good idea for the fraternity to join together in a lower order of the Photographers' Association of America, called State Associations, for advancement in the art, and for protection against "cheap Johns" and low prices? It seems to me that the organizing of such associations would be of great benefit to the local photographer. The meetings could be held once a year, and delegates could be sent to the meetings of the P. A. of A., to report progress, and otherwise help on the National Conventions. We might exhibit our work, listen to lectures and essays on photography, and attend to

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such other business as might come before these meetings. Here we might agree on a scale of prices, fair for all persons interested, and perfect plans to drive the "cheap John" from our land. Now do not think for one moment that I believe in exorbitant prices, for I do not, but I do believe in a price that will enable the photographer to support his family in decency, and keep his business up in a thriving, prosperous condition, and cause him to feel that he is a man among men.

Now how shall we meet this "scum of creation," the "cheap John," who, oftentimes, don't know the cost of the material that goes into his miserable productions? Why, feed him his own medicine--low prices. The rattlesnake dies from his own bite, and "cheap John" will go under if you meet him with prices at just cost of production; and, right here, is where the State Associations will come in. My plan is, if a "cheap John" should come into a place to cut prices, let the association send in a good photographer to carry on the war, the local photographer holding to regular rates. Thus the fight would be between strangers, to the people, and would not hurt the home photographer, as it would if he fought the battle himself.

The prices in his gallery would not become run down, and the people would not have cause to find fault with him. The association man would probably be crowded with work. In that case the located photographer would help finish as much of the work as possible at just cost, thus helping the association, who is there to help him. It seems to me "cheap John" would soon have to go; then let the association follow him until he would either give up the business or come to reasonable prices.

This would be bad medicine for the local photographer, but when we have disease we must take the medicine that will cure it best.

Brother photographers, what do you think of State Associations; are they practical?

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WE remark the names of Messrs. Michelet, Davanne, and Léon Vidal among the list of the jury in the Exhibition of the Central Union of Decorative Arts at Paris.

## A REMEDY FOR LOW PRICES.\*

BY FRANK ROBBINS,  
Bradford, Pa.

IN regard to the problem of low prices, I have given the subject careful study for the past few years, and find in nearly every instance the cutting is commenced by the advent of a cheap John (a parasite on the fraternity), who seeks a city where good prices prevail. His work is generally of inferior quality, and he depends upon the low price to bring him a rush of work.

The remedy suggested by Mr. C. Gentile, in his valuable paper read before the Chicago Convention, is the right one, and will cure the most obstinate case of cutting if vigorously applied at the earliest stage of the disease. It should be applied by the united strength of the fraternity, and well rubbed in by lively advertising.

The plan is briefly this. The better class of photographers must meet and immediately form a stock company, and fit up a gallery as near the cheap John as possible, but in a little better location. It can be furnished and equipped with apparatus, etc., that is not in use in the galleries of the different members of the company, and at small outlay of actual cash.

But be quick about it and advertise what is being done, and respectfully ask the public to wait, etc., for the grand opening.

Now turn out work at this new gallery that is a trifle better than the work done by cheap John, and put the price a trifle lower.

This will attract his cheap line of customers, and the formidable appearance of this opposition will soon kill him.

By this plan the loss or profit of the company's cheap gallery is shared by all; and in case of a long-continued cut, nobody will suffer so much as cheap John, as prices in all the other galleries can remain the same. As soon as the cheap man has left town, or raised his prices to a fair living rate, trade will again resume the natural course which the great law of supply and demand has given every branch of business since the creation of man.

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\* Written for *Mosaics*, but received too late.



There is surely no branch of business that has bent, twisted, and broken this law so badly as we have done.

And the remedy—yes, the perfect cure—is in our own hands, if we will apply it rightly.

I do not write these lines as a matter of theory, but as the result of a bitter and hard-earned experience for the past three years. And I claim that there is not a case of this low-price mania that cannot be cured, and good paying prices established. I do not mean extremely high prices, neither do I suppose that photographers of all grades will establish a uniform price-list. But I do presume that the photographers in any city or locality can form a friendly alliance and protect themselves against this, one common evil.

I will cheerfully answer any questions on this knotty subject, as I would like to see some good results follow the very unpleasant experience of an old photographer.

### HOW TO CUT AND MOUNT STEREOSCOPIC VIEWS.\*

BY L. T. SPARHAWK,  
West Randolph, Vt.

FIRST, let it be supposed that you use the Robinson Trimmer, and metal guides. Take the guide, and with a square and some sharp-pointed instrument scratch a line across the pattern—on a line with the lower side of the opening. Now pile up your views from the washing-water, in piles of about one dozen each, and put them between two pieces of white blotting-paper, and run them through a common clothes-wringer. Now proceed to cut them out (while still wet, just as taken from the wringer); lay your picture on a glass, and lay your pattern on the right hand picture; cut it out and place it to one side—face up. Now move your pattern to the left-hand picture, so that the line on your pattern will be on a parallel line with the lower edge of the picture just cut out. Cut out the left hand picture and lay on top of the one just cut out—all face up—and continue this process until all are cut out. Now turn the whole pile over, and paste and mount

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the first picture on the left hand end of the card, and the next on the right, and so on through the pile, and your pictures will be mounted reversed properly and no mistakes made, and no need of marking the pictures, as used to be practised, in the old way, and also no need of a trimming line on the negative.

All this may not be new to your readers, but it has been a help to me, and I trust it may be to others who have not thrown by making one of the best kind of views ever made.

### A GOOD DEVELOPING DISH (OR PAN).\*

BY J. C. SUNDERLIN,  
Flemington, N. J.

SEVERAL years ago, when dry plate work was in its embryotic state, I called on Mr. Eastman, who took me into his dark-room to see a plate developed. He was using for a developing pan one made out of sheet copper lined with *tin*. It seemed novel, and I asked if it had no injurious effects upon the developer, and he replied that he thought not. I had one made as soon as I reached home, and have used that same pan ever since, and though the tin wore through it works just as well. Have had several made since, of different sizes, up to 11 x 14, and find them complete and cheap.

Simply sheet copper tinned on one side. Any tinner can make them, just as the ordinary square tins are made for kitchen use—*i. e.*, with the corners *folded* over, without solder (perhaps a little less flaring at the sides, and as deep as one likes). The bright bottom is an advantage in aiding judgment about intensity of negative.

### ORTHOCHROMATIC PHOTOGRAPHY.

BY C. H. BOTHAMLEY, F.I.C., F.C.S.,  
Assistant Lecturer on Chemistry and Lecturer on  
Photography in the Yorkshire College, Leeds.

(Continued from page 681.)

IN considering the patents which have been taken out in this country for processes relating to orthochromatic photography, it

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must be understood that the author lays no claim whatever to being an expert in patent law. The patent law of this country consists mainly of precedents, and the validity of a patent, after it has once been granted, can only be tested in the law courts. At the same time, there are certain broad general principles which are tolerably well defined, and can readily be understood without any special legal training.

A patent is only granted to the real inventor of the process patented, and it becomes void if it can be shown that the patentee was not the true and first inventor.

A patent is invalid if the invention was worked for profit by the inventor before the patent was applied for. It is likewise invalid if the invention has been in public use by others than the alleged inventor previous to the date of the application.

A patent becomes void if it can be shown that the subject matter was previously described in any printed book or journal which circulated or was in use in Great Britain, and it is immaterial whether the book is in English or in a foreign language. Information published in this way is rightly regarded as belonging to the common stock of knowledge and no longer the peculiar property of an individual.

Further, it is essential that the invention be so fully and clearly described in the specification that any one conversant with the art or manufacture to which it relates can carry out the process or invention to a successful issue without requiring any information beyond what is contained in the specification, and without any necessity of making further experiments. This is required in return for the monopoly granted to the patentee, and unless this condition is fulfilled the patent will not hold good. The specification must state precisely what is claimed, and must distinguish clearly between the old and the new in the description of the process. The process or invention must be described fully and in good faith; there must be no attempt to mislead; no essential particulars may be kept back or omitted either accidentally or wilfully; and the description must be clear and free from ambiguity.

On the other hand, if the principle is new, a patentee is not confined to the precise method of putting it into practice which is described in his specification. Sufficient illustration of the practical application of the principle must, however, be given. If, on the contrary, the principle is not new, a patent can only be obtained for some particular method of applying it, and the patentee is confined to the precise method or methods described in the specification.

The specifications relating to orthochromatic photography is quoted *in extenso* so far as is necessary to explain their meaning; any objections or criticisms that are made must be taken for what they are worth. It is scarcely necessary to say that the writer has no interest whatever in the validity or otherwise of the patents referred to.

*The Eosin Patent.*—The patent is of considerable interest, since it was the direct outcome of the first successful application of dyes to gelatine plates for the purpose of rendering them sensitive to the less refrangible rays. It is No. 101, 1883; the provisional specification is dated January 8th, and the final specification July 2d of that year. The letters patent are granted to Charles Denton Abel, "for an 'Invention of Improvements in the application of eosine in photographic processes;' communicated to him from abroad by Pierre Alphonse Attout, called Tailfer, and John Clayton, both of Paris, France."

The first paragraph is historical. It credits Waterhouse with showing the sensitizing influence of dyes in 1876, and refers to the application of eosin and other dyes in collodion processes. The subsequent paragraphs are as follows:

"The present invention relates to the application of eosin to the said gelatino-bromide process. The difficulty experienced in this application arises from the fact that eosin gives no result unless it is introduced with ammonia as a vehicle, and it is the combined use of ammonia with eosin that forms the essential features of the present improved process."

"According to the present invention the gelatino-bromide process of photography is carried out by two different methods, according as it is desired to prepare the gela-

tino-bromide, or to use plates already prepared. In the former case eosin, by preference previously dissolved in ammonia, is poured into the emulsion of gelatino-bromide of silver at the moment of its formation. The proportion of eosin employed is about one part by weight to one hundred parts of the compound. The eosinized emulsion is spread, as usual, over the glass plate, and after exposure to the light is treated in the usual manner for the development and fixing of the picture.

"When gelatino-bromide plates already prepared are available, it is sufficient to pour over the dry film the ammoniacal solution of eosin, to which alcohol is added. The plate is then washed, without fear of the removal of the eosin, which becomes immediately associated with the gelatino-bromide.

"This improved eosinated gelatino-bromide process produces very satisfactory results. On the photographs produced thereby, the relative values of the yellow, blue, and violet colors may be easily distinguished."

"Although in what has preceded only eosin has been mentioned, it is to be understood that other acid or saline coloring matters obtained with the various fluoresceins of resorcin combined with metalloids, chloride, bromine, iodine, may be included under the same generic term. Also, instead of ammonia alone being applicable as a vehicle for the eosin, other alkalis may be used for purpose."

"Having thus described the nature of the said invention, and in what manner the same is to be performed, as communicated to me by my foreign correspondent, I claim—In photographic processes of the gelatino-bromide kind, the use of eosin applied with alkali as its solvent and vehicle, either in the liquid emulsion, or on the dry layer of a prepared plate."

The first point to be observed is that the term "eosin" is used inclusively, and, therefore, is meant to comprise erythrosin, rose Bengal, and all the other dyes which are allied to eosin. At the same time, the phrase "acid or saline coloring matters, obtained with various fluoresceins of resorcin combined with metalloids, chlorine, bromine, iodine," would not be regarded by

a chemist as in any way an accurate description of erythrosin and its allies. There is only one fluorescein, and eosin, erythrosin, etc., as previously pointed out, are not compounds of fluorescein with chlorine, bromine, or iodine, but *derivatives*, a certain proportion of the hydrogen in the fluorescein being removed, and its places taken by one or other of the halogens. Moreover, there are dyes of the eosin group which have been first prepared since the date of the patent, and it can scarcely be claimed that a patent covers the use of compounds which were not known when the patent was granted. It might possibly be argued, however, that these new dyes were still "eosins," and that the use of them infringed the principle of the invention.

The most important point, however, is that the patent does not cover the general application of eosin dyes to gelatino-bromide plates, but simply their application *in conjunction with ammonia or some other alkali*. It is, in fact, distinctly stated that "eosin gives no result unless it is introduced with ammonia as a vehicle," and the claim made is for "the use of eosin applied with an alkali as its solvent or vehicle." It is obvious, therefore, that eosin and its allies may be applied to gelatine plates or emulsion in *aqueous* solution, with or without a silver salt, or in any way whatever, *provided that no alkali is used*, and such application will not constitute an infringement of the patent.

Again, in order that a patent may be valid, the invention must be described so fully and clearly that any one with a competent knowledge of the art or manufacture to which it relates can work it without requiring any further information, and without needing to make any experiments. It may very fairly be questioned whether the above specification satisfies this condition. Even so able a photographer as Mr. W. Bedford has stated (*Photo. Journal*, vol. xi. p. 73) that he has tried the process as described in the patent, but was unable to obtain any good results, and others state that they had similar experience. As a matter of fact, the secret of success with the eosin dyes, as with all other sensitizers, lies in using the proper proportion of the dye.

It has been clearly shown by both Eder and Vogel that too large a quantity of dye is fatal to any orthochromatic results. Now a one per cent. solution, as recommended in the specification for bathing prepared plates, is very much too strong, and gives little or no increased sensitiveness to the less refrangible rays. The addition of one per cent. of eosin to the emulsion would likewise give no satisfactory result. It may be of interest to recall that the amount of eosin recommended by Eder, Vogel, Schumann, etc., is about 4 milligrams in each 100 c.c. of emulsion, or less than 0.004 per cent. With the bath process the author obtains the best results with a solution of 1 part in 10,000. The specification, in fact, gives no trustworthy information at all as to the proper proportion of dye to be used, although this information is essential to the successful working of the process. The use of alcohol, too, is unnecessary, and should be avoided.

With regard to the statement that eosin gives no result unless it is introduced with ammonia, attention may be called to the fact that the experiments of Eder and of the author have conclusively proved that both erythrosin and rose Bengal, which are understood to be included in the term eosin, give a very considerable sensitiveness to yellow and green when applied without any alkali at all.

It may also be pointed out that the specification contains no mention of a yellow screen, which is *essential* to the production of *correct* gradations with all plates hitherto prepared with simple alkaline solutions of eosin dyes.

*Vogel's Patent.*—This is No. 7963, 1886, and is dated June 15th. The claim is for "An improved process for manufacturing color sensitive (isochromatic or orthochromatic) emulsions or plates, by dyeing the same with dyes highly sensitive to light." The first three or four clauses are historical, and deal with the earlier experiments of the author and others; the following paragraphs contain a summary of Vogel's conclusions and results, and are, therefore, of sufficient interest to be quoted *in extenso*. He says:

"Continuing my researches and experi-

ments, I observed that some dyes which absorb colored rays are not sensitizers for such rays, and ascertained that only those dyes are optical sensitizers which are not only powerful absorbents of certain rays, but which are themselves readily decomposed by light.

"The more readily colored bodies fade under the influence of light, the better is the same adapted for rendering silver sensitive to light. When this fact has once been established it will be an easy matter to determine whether any new dye or color is a good medium for increasing the sensitiveness of the haloid salts of silver, it only being necessary to test its sensitiveness under exposure to light, and if it fades readily it is a good medium for rendering such silver salts sensitive.

"In order to carry out this test, I prefer to prepare paper, gelatine, or collodion with the dye or color in question, and expose the same to the light (preferably sunlight) under a perforated screen or photographic negative.

"In this manner I ascertained that cyanine is one of the best sensitizers or mediums for increasing the sensitiveness of the salts of silver employed in photography, and I furthermore discovered other valuable colors for achieving the same object.

"I discovered further that all the red, violet, and blue chinoline and pyridine dyes, which cannot be employed by dyers on account of their fading so rapidly when exposed to light, are first-class optical sensitizers for photographic plates.

"The application of the afore-mentioned dyes is extremely easy; for instance, (a) the dye is either dissolved in alcohol in the proportion of about 1:1000 alone or mixed with other colors, and then mixed with the prepared emulsion, and with or without an addition of liquor of ammonia or carbonate of ammonia; or (b) the dye is dissolved in water alone or mixed with other dyes, with or without adding liquor of ammonia or carbonate of ammonia to the solution.

"The quantity of dye to be added to the emulsion varies according to the quality of the latter, and must be determined by an experiment. An excellent formula for many emulsions is:

2 to 4 cubic centimetres of a solution of chinoline red in alcohol (1 : 500).

5 drops of a solution of cyanine (1 : 500).

100 cubic centimetres of water.

1 cubic centimetre liquor of ammonia.

The emulsion plates are dipped or steeped in this solution for one minute, and then dried. On the other hand, I have ascertained that the chemical stability of certain dyes—such, for instance, as cyanine—can be increased to a great extent by combining the same with certain other dyes, so that colors which produce plates which will keep only a short time can be used to advantage in combination with other dyes, whereby plates of good keeping quality are produced. For instance, cyanine is very much improved by an addition of chinoline red, and for the above-named reason I prefer, in many cases, to use mixed dyes instead of single dyes."

Claims are then made in eight clauses for the rendering of photographic plates and emulsions and the haloid salts of silver sensitive to colored rays of light by treating them (1) with dyes or colors which readily fade when exposed to light; (2) by treating them with aqueous or alcoholic solutions of chinoline, chinoldine, or pyridine dyes; and, (3) by treating them with a mixture of two or more dyes applied either successively or simultaneously.

It will be observed that this specification is extremely comprehensive, and is intended to cover all classes of plates and emulsions, and all forms of the haloid salts of silver. It will, however, be obvious to those acquainted with the history of orthochromatic photography that part, at least, of the matter claimed had already become common property by publication prior to the date of the specification. The use of quinoline red, and the use of mixtures of dyes with a view to secure increased stability, might possibly be substantiated as new inventions, but the use as sensitizers of dyes (including cyanin) which fade when exposed to light, was already well known to those acquainted with this branch of photography. A very full account is given in Vogel's own book, *Die Photographie farbiger Gegenstände in den richtigen Tonverhältnissen*, published at

Berlin in 1885. The results of the greater part of Eder's investigations were communicated to the Vienna Academy of Sciences in 1884 and 1885, and are described in part 10 of his *Ausführliches Handbuch der Photographie*, published at Halle in 1885. To go still further back, the principle of the use of fugitive and other dyes as sensitizers for the less refrangible rays is described in Eder's "Chemical Effect of the Spectrum," a translation of which, by Abney, appeared in the *Photographic Journal* in 1881 and 1882, and was published in book form in 1883. Moreover, accounts of the various investigations made by Vogel, Eder, Schumann, and others, previous to 1886, are to be found in various scientific and photographic periodicals, most, if not all, of which could be and can still be seen at the Patent Office Library.

With reference to the claim which Vogel makes in this specification, that "the first isochromatic—i. e., color sensitive collodion—process was published by me in the May (1884) number of the *Photographische Mittheilungen*, Berlin," it is desirable to call attention to the fact that Ives published his chlorophyll process in the PHILADELPHIA PHOTOGRAPHER in 1879, and to him undoubtedly is due the credit of producing the first workable orthochromatic process. With regard, likewise, to the statement that dyes which fade most rapidly when exposed to light make the best sensitizers, it may be pointed out that although many sensitizers do fade under these conditions, as previously explained, a necessary connection between the fugitive character of a dye and its sensitizing action is as yet by no means absolutely established.

In a specification dated November 29, 1886, Vogel made a further claim for the application to gelatine plates and emulsions of the silver and lead derivatives of eosin and its allies; the application of cyanin, quinoline red, coerulein, etc., together with salts of silver; and the application of ammoniacal or acid solutions of salts of silver which are insoluble in water (*Photographic News*, p. 124, 1887).

This patent was opposed on the ground that it was an imitation and infringement of the eosin patent, and no Letters Patent

have yet been granted. It is, therefore, unnecessary to enter into any consideration of objections that might be raised to the claim made. The increase in sensitiveness resulting from the presence of a soluble silver salt together with the dye was, however, known in this country before the date of specification.—*Photographic News*.

(Conclusion.)

### PERTAINING TO THE



FROM the communications which appear in our contemporaries and from our own correspondence, we gather that the sentiment for Minneapolis is so strong that the management of the P. A. of A. would make a serious blunder if they changed the locality for the next convention.

In the matters of the prize awards and of the rules for the jury of awards, there seems to be but little interest expressed and the major portion of that which is expressed comes from that live photographic centre, St. Louis. We should like to see more interest in these topics, and will welcome the communications of the earnest ones. All we ask is, that they will be brief and concentrated, as well as earnest. Mr. J. Hegyessy again speaks as follows:

I have read the communication of Mr. S. D. Rogers in your issue of November 19th. He seems impatient to know the *standard or rules* by which the competing pictures of next year shall be *criticised* by the jury, and fears to question them in what *appears to be their own business*, as he says:

I never heard that any other *standard or rule*, except their best and impartial knowledge how to judge, was prescribed to the judges.

He seems uncertain whether photography

has reached higher in the art, than to *simply please people, or decorate their home*; and fears that should the competing pictures at Minneapolis prove to be really artistic in character that we cannot find among the members of the P. A. of A. enough competent and impartial judges to criticize from a true art standpoint. Now, photography has proven itself capable of very high art though its chief aim is "to please the people, and to decorate their homes."

I would not care to lose the *accidental effects* in exchange for truly artistic composition, for I never could detect their *popularity* and always prefer the display of *decided knowledge to haphazard effects*.

I would not even advocate, like Brother Rogers, the stealing of conceptions and compositions of painters and sculptors, when pictures are to compete for prizes, for, what we want, is to make photography an *independent art by itself, by means of original and individual creations*.

One question of Mr. Rogers I cannot understand, viz., "How can a photographer *intelligently* make pictures for the coming competition, unless he understands *how his work is to be considered*, and what hope has he for reward, *unless he is a mighty good friend of his critics?*"

Does this mean that if it is left to the individual to select and execute his own work, *only those competitors who are mighty good friends with the judges, will carry away the medals?*

I hope this interpretation may be merely a *charm of accidental effect of misunderstanding*. What I would urge upon the electors in a body, as to the next convention, is to elect two classes of judges:

No. 1. Judges, non-competitors, for the *first-class prizes*, of equal standing with the rank of this class of competitors.

No. 2. Judges for the rest of the awards. This seems to me a practical way of doing away with repetitions of the scenes which occurred at the last convention.

Mr. Hegyessy adds a number of useful suggestions concerning the rules which should be made by the management for the offers of prizes. Trusting he has sent a copy to President Decker we omit them, as

they are entirely for the Executive Committee. What follows may enlighten some intending competitors, and we add it from Mr. Hegyessy's last communication.

The instructions to the judges are as follows:

"Each judge shall separately make his examination of the competing exhibits, and decide upon the merits of the same, giving in each class No. 10 to the best, No. 9 to the second best, and so on according to the number of medals awarded."

The judges generally class their judgment in the following manner:

Name of Exhibitor.	Light and Shade.	Pose.	Composition.	Chemical Effect.	
W. ———.	10	10	10	10	40.
"	9	9	9	9	36.

Writing on the side the names of each competitor, the number of merit, their knowledge, and as conscience dictates as to the merit of the pictures.

The exhibitor who receives the highest number by the addition of the judge's totals, is considered as the first prize winner, and so on. This is called a "score."

Let that score be fully published *ex officio* in all the photographic newspapers, and thereby credit be given to the defeated, but just as brave fighters of the battle as their victorious brethren.

This will cut short the effect of any unscrupulous advertisement of an indelicate brother, for his neighbor has only to publish the official report of the Award Committee, and challenge the advertiser to exhibit his medal to prove the contrary, and convince the people of the untruthfulness of his co-worker.

This *modus operandi*, it seems to me, would have the other beneficial effect, to push the defeated competitors to better efforts for the general benefit of photography of this country.

So, for my suggestions, should they be able only to create interest among the members of the P. A. of A. in the direction given above, and bring forward some suggestions or remedies, I will be amply repaid for my willingness to break a lance for the welfare of the flag of our beloved P. A. of A.

J. HEGYESSY.

Assistant Operator of F. W. Guerin.  
St. Louis.

## THE WORLD'S PHOTOGRAPHY FOCUSED.

FRENCH PATENTS.—M. Dessendier has patented a printing process by which it is possible to obtain and change simultaneously photographic prints without regard to the number of negatives or the difference in their intensity. This process consists in the use of: 1st, differential scales destined to graduate the intensity of the light received by the model, in order to obtain successively the negative print and the positive print; 2d, of an intensifier, or regulator of nega-

tives, so as to properly distribute the light and obtain negatives of the required intensity; 3d, of collective frames for printing, these frames being placed alongside of one another, and forming but a single body. Each frame opens at the bottom, in order to watch the print. The pressure of the paper on the negative is obtained on all at the same time by means of a single bar, whose action may be destroyed by means of a crank, which rolls and unrolls the cylinders on which the negatives are placed.

A NEW PROCESS FOR MAKING COLORED IMAGES (Patent of M. Armengaud).—This process has for its object the obtaining of pictures or colored images very similar in appearance to those made by chromolithography. A drawing is first made of the object to be reproduced and then photographed; this will bring it to the desired size. This photograph presents the outlines and the modellings of the object; it is transferred to stone or zinc, as for autographic printing, and openings corresponding to the different colors of the drawing are cut in sheets of very thick card-board or metal plates. We obtain in this way as many forms as there are colors. The different colors to be obtained are applied in the openings of the forms by means of a brush, and consist of printer's fatty inks. The colors having been applied and well localized, the colored autographic print is now pulled.—*Journal de l'Industrie Photographique.*

TRANSFER TO ANY SUPPORT OF ENGRAVINGS, PHOTOGRAPHS, ETC.—M. Amédée Masselin has just published a *Treatise of Photography*, from which we extract the following. This transfer is unalterable, but, we may remark, that it is reversed, and, consequently, no writing should be on the engraving.

Soak the engraving to be transferred in water for two minutes; then dry between two sheets of bibulous paper. Pass over the part to be transferred a coating of white varnish, made with the finest alcohol, and which may be procured from any colorman. Should the first coat of varnish be absorbed, give a second coat; then quickly apply the engraving, using a cloth in order to make it thoroughly adhere to the body to which the transfer is to be made. Allow to dry for four hours, then wet the back of the engraving, and rub with the finger, a sponge, or cloth, to remove the paper, until the image is seen with all its details. Give a coat of the same varnish, and allow to dry.—*Journal de l'Industrie Photographique*.

PHOTOGRAPHIC SCHOOLS IN GERMANY.—In Germany it is now admitted, and with reason, that young men who wish to become photographers should receive a rather extended scientific education, and it is with this end in view that in a short time there will be opened at Vienna, under the direction of Professor Eder, a photographic school in which will be taught all the manual or mechanical photographic processes. On the other hand, at Carlsruhe (Baden) photographic courses are already established. For several years past a private photographic school has existed in Bavaria, at Grönenbach. In this establishment, situate in the midst of the finest sights of the Bavarian Alps, more than one hundred pupils from all countries have received a very thorough instruction in all photographic processes, ancient or new.

In the October number of *La Revue Photographique* is the translation of Messrs. Roberts & Fellows's process for bleaching prints to be used in photogravure—a weak solution of cyanide of potassium to which a little iodine has been added.

ON the occasion of the Universal Exhibition of 1889, to be held at Paris, Mr. Stenberg has proposed to the French Photographic Society to organize a Congress of Photography. This proposition was taken into consideration and referred to the committee of administration.

*Le Journal de l'Industrie Photographique*, in reply to a correspondent, quotes the *St. Louis Photographer* as saying that the Chicago Convention was the most complete failure known in the history of photography.

A WORD ABOUT INSTANTANEOUS EFFECTS.—In regard to instantaneous effects, of which so many examples are seen, they are often very unsatisfactory. In street scenes, the legs of the pedestrians are in extraordinary positions, such as we never see them; with moving horses it is still worse, and birds flying appear motionless. How is it that the painter gives the effect of motion to all these objects, and that instantaneous photography is most often incapable of rendering it?—DR. PHIPSON, in *Le Moniteur*.

PHOTOGRAPHING MICROSCOPIC OBJECTS.—Mr. Jennings has published a very interesting paper on the making of photographs of microscopic objects for lantern use. He asserts that the use of the eye-piece of the microscope does not affect in any way the beauty of the image, and it renders the work of the operator much more easy. Operating without the eye-piece, it is necessary to have a camera which can be extended five or six feet, whilst with the eye-piece it is possible to use a camera of from ten to twelve inches. For lighting, he makes use of a paraffine lamp with the largest possible wick, placed about six inches from the table of the microscope. Between the lamp and the object is placed a condensing lens, so as to concentrate the light on the object to be reproduced. The body of the microscope being horizontal, the little camera is brought near, the eye-piece introduced into the hole of the lens of the camera, and this portion covered with black velvet, so as to exclude all accidental light.—DR. PHIPSON.

POSSIBILITY OF FIXING THE NATURAL COLORS.—Mr. J. T. Taylor, having in his



possession a silver plate on which are printed in *natural colors*, the tints of the solar spectrum, has recently exposed this plate to solar light for a fortnight, without producing any change in it. From this experiment, Mr. Taylor infers that it will be possible to fix the *natural colors*, although the contrary has been so often asserted.

M. LEON ESQUILLE has perfected a marvelous invention in electricity and photography. By speaking into a photophone transmitter, which consists of a highly polished diaphragm, reflecting a ray of light, this ray of light is set into vibration and a photograph is made of it on a traveling band of sensitized paper. Now comes the wonderful part. If the image of this photographic tracing be projected by means of an electric arc or oxhydrogen light upon a selenium receiver, the original speech is then heard. It is evident that there is no limit to the development of this peculiar combination of methods.

**SENSITIZED ALBUMENIZED POSITIVE PAPER CUT TO SIZE.**—A Paris house has just introduced an improvement in the sale of sensitized albumenized paper which is of a character to facilitate for photographic amateurs the carrying and the use of this paper, which they can now obtain cut of all sizes. The paper is packed in flat tin boxes coated on the inside with golden varnish which completely isolates the sensitive preparation, and prevents injury from a metallic contact.

### PRACTICAL POINTS FROM THE STUDIO.

**TO CONVERT PRINTS ON EASTMAN PAPER INTO PLATINOTYPES.**—Professor Vogel has recently published a modification of the process of M. Vidal for converting prints made on Eastman paper into platinotypes. After development, fix, wash, and place the print face down in the following bath:

Chloroplatinate of Potassium	1 gramme.
Distilled Water	. . . 1000 grammes.
Pure Chlorhydric Acid	. . . 10 c. c.

The print should remain twenty minutes in this bath, then be rapidly washed and

placed in a solution of chloride of copper. In this way the silver is converted into chloride of silver, and acquires a brown color. If this tint is too weak, it may be strengthened with the oxalate developing bath. All these operations may be made in daylight. The color may be made still darker by fixing to remove the excess of silver, and then plunging the print for five minutes into a bath of alum and chlorhydric acid. Wash well for fifteen minutes, and dry.—*Phot. Mittheil.*

**FIXING AND TONING BATH.**—In a recent number of the *Wochenblatt*, Dr. Stolze has published the following formula for a bath, which fixes and tones prints at one time:

Hyposulphite of Soda	. . . 35 parts.
Chloride of Sodium	. . . 9 "
Alum	. . . . . 4 "
Sulphocyanide of Ammonia	. . . 2 "
Water	. . . . . 150 to 200 "

#### DEVELOPING BATH.—

##### No. 1.

Pyrogallic Acid	. . . . . 14 parts.
Sulphite of Soda	. . . . . 100 "
Distilled Water	. . . . . 500 "

##### No. 2.

Carbonate of Soda	. . . . . 50 "
Distilled Water	. . . . . 1000 "

Mix one volume of No. 1 with two volumes of No. 2 —*L'Amateur Photographe.*

**COMBUSTIBLE PHOTOGENIC POWDER.**—Mr. Johannes Gædicke, chemist, of Berlin, and Mr. Adolf Miethe, of Potsdam, have taken out a patent for an improved process for a magnesium light suitable for photographic work. The composition that they recommend is as follows:

Chlorate of Potash	. . . 12 parts.
Magnesium in powder	. . . 6 "
Prussiate of Potash	. . . 1 part.

Or,

Chlorate of Potash	. . . 24 parts.
Magnesium in powder	. . . 12 "
Amorphous Phosphorous	. . . 1 part.

There is nothing new in this; several years ago analogous formulas in which magnesium in powder entered, were given to the public. Mr. Gædicke's son is in America.

REGENERATION OF THE OXALATE DEVELOPER.—In a white glass bottle, holding about two quarts, introduce two glass tubes, one of which has the upper portion bent and extending nearly to the bottom of the vessel, and the other merely piercing the cork. In this bottle are placed some spirals of very clean iron wire. After having developed a plate from the developer which has been used into a glass mortar, add some crystals of pure oxalic acid which are ground in the liquid. The liquid is then sucked into the bottle—after the first introduction pour into the bottle sufficient lubricating oil to form a film of the thickness of a centimetre; this

is to prevent the contact of the air. The bottle should be kept where it will receive the light of the sun. As soon as the bottle is almost filled, the regenerated developer may be made use of by blowing into the bottle through the small tube. With the same quantity of the regenerated developer it is possible to develop more plates than with a fresh developer, and at the same time there is always some ready at hand. Avoid placing the bottle in a place in which it might rapidly cool, otherwise the ferrous oxalate would partially deposit. The only objection is that the development is rather slow.—*Photographische Correspondenz.*

## Editor's Table.

A PLEASANT ANNIVERSARY.—The Photographic Society of Philadelphia celebrated its twenty-fifth anniversary at the Penn Club House, on Saturday evening November 26th. The occasion brought the presence of many of the old members, some of whom we had not met for several years. Among them we conversed with President Frederic Graff, Treasurer S. Fisher Corlies, John C. Browne, Charles Bullock, John Carbutt, Francis T. Fassitt, Dr. J. J. Kirkbride, Craig D. Ritchie, Samuel Sartain, J. Dickinson Sergeant, Edward Borda, James F. Magee, Wm. Bell, Evan T. Ellis, Wm. D. H. Wilson, Jos. M. Wilson and other noted gentlemen who came in with the renaissance of amateurism. We joined the Society in 1863 and consider ourselves one of the veterans when we look upon such men as Mr. Edmund Stirling, editor of the *Camera* column in the *Public Ledger*, John Carbutt, Jr., and others of the second generation.

The following points are taken from a history of the society prepared by John C. Browne: To Constant Guillon is given the credit for the first practical idea of organizing such a society, a meeting having been called by him with that end in view in December, 1860. Nothing definite was done, however, until October 19, 1862, when, at a preliminary meeting over which Frederic Graff presided, the steps were taken which culminated in the formal organization on November 26th. The first officers were: President, Constant Guillon; Vice-Presidents, Fre-

deric Graff and J. Dickinson Sergeant; Treasurer, S. Fisher Corlies; Recording Secretary, John C. Browne; Corresponding Secretary, Coleman Sellers. A room in the third-story front of No. 520 Walnut Street was rented and for over twenty years was the abiding place of the society. The old society has sent forth many a useful suggestion, for the growth of our art and its meetings were never so largely attended as they are now.

The gathering was quite informal. No speeches or ceremonies of any kind—not even the “health of the *press*” was indulged in. A fine collation was set and developed great energy on the part of the multitude of manipulators present.

THE *Mosaics* overflow articles, which appear this issue will be found good and helpful reading, and give an insight into the character of the contents of the favorite little annual. It was predicted that *Mosaics* “will not sell as well this year as it did last,” but—the would-be owner of it must be spry if he desires to secure a copy. We regret the delay, but it is in good time for the holidays. Your operators all need it.

PICTURES RECEIVED.—Mr. JOHN CARBUTT, Wayne Junction, Philadelphia, has favored us with an excellent cabinet of Messrs. F. Graff, President, S. Fisher Corlies, Treasurer, and R. S. Redfield, Secretary, of the Photographic Society of Philadelphia, made by magnesium light.—

Messrs. STUBER BROS. have made several excellent pictures of a fine setter dog, copies of which they have sent us. The dog has behaved more complacently than many human beings do before the camera.—Mr. G. CRAMER has sent us eight negatives of "The Fairy Dance" for our February embellishment, made with the Suter Lens. Expect something very fine this time.—Mr. H. RIISE, our enthusiastic correspondent at Amsterdam, Holland, is an excellent photographer. Some recent examples of his work received by us are artistically excellent in every sense. Mr. Riise sends over here for "American studies," but he need not do so.

RAILROAD WRECKS, etc., have been running into our office in answer to our recent request for pictures of such disasters. We want anything and everything peculiar which pertains to a railroad—curves, switches, signals, smashups, collisions, overturns, viaducts, bridges, trains in motion or snow-blocked. What may seem of little importance to you may prove very helpful for our purpose of illustration. Please apprise us of what you have in this line.

How can any photographer have the audacity to publish himself as the recipient of an award at Chicago, when he was not? And yet we hear it is done in Iowa.

MR. C. G. BUSCH, Claremont, N. H., sends us some *blue* prints "made on New Hampshire paper which costs but seven cents a pound," and others from the same negatives which were made upon Rives paper. It is hard to detect any difference, except that the latter paper is harder-calendered, and, therefore, smoother and glossier.

THE trophy car of Mr. GUTEKUNST reminds us of some admirable 8x10 street views of the Constitutional procession received from Messrs. ROBERTS & FELLOWS, Philadelphia. We do not think we ever saw views of this class more excellently done. The point of view was from the Public Buildings, northward, and the exposures were not made when the foregrounds were empty by any means. In some of them there is at least a thousand people, all caught "on the go." Regiments of soldiers; trade's organizations in uniform; companies of police; gaily caparisoned societies, and even wide files of hod carriers are all caught with "now hay-foot, now straw-foot" in the air. On either side are the shouting people piled in solid tiers, from the street, ascending, against the houses. The series

is very charming and worthy the study of those who expect similar opportunities. We should like to hear from our Philadelphia friends and successors, how they excelled anything we ever did before them.

"CARRIAGE WHEEL" photography and magnesium portraiture were discussed in this magazine as far back as 1865. We shall give some reproductions in our next issue. Meanwhile, if those who have it will refer to our issue of January, 1866, they will see a fine group made by magnesium light in a parlor in Philadelphia also much about doing it.

*Quarter Century.*—From Newfoundland to Australia, during the past month, we have received letters concerning the acceptability of our last work, *Quarter Century*, that would delight and gratify any author's heart. We thank our friends who have thus taken the pains to write to us and wish we could publish their kindness to the world. We may do so in some shape presently. But we feel that we have taken up enough of the space which belongs to our readers to apprise them of the existence of *Quarter Century*, and now if they lose the benefits to be gained from it, of which the happy owners speak, our skirts are clear. Meanwhile, grateful thanks, good photographers, for your patronage and for your kind words.

THE Brussels International Exhibition to be held in May should not be overlooked by our enterprising and patriotic readers. All information may be had from Messrs. ARMSTRONG, KNAVER & Co., authorised agents, 822 & 824 Broadway, New York.

"COMPOUND MAGNESIUM POWDER" for negative making is manufactured and supplied by Messrs. G. A. DOUGLASS & Co., Chicago, and a circular of instructions is supplied free.

"ACTINIC LIGHT COMPOUND" is also supplied in powder by Mr. JOHN CARBUTT, Wayne Junction, Philadelphia, at 75 cents per ounce. Circulars free. Mr. Carbutt also supplies orthochromatic plates as large as 18x22 inches.

CAMERAS AS HOLIDAY PRESENTS.—Messrs. LOEBER BROS., the enterprising stockdealers, 119 & 121 Nassau St., New York, offer a full line of the *Blair Cameras* for holiday presents. This is a capital idea, and we have reason to know, is a popular one. A tripod wont go in a stocking, but it will produce good health to

that degree that the stockings will grow up to anything.

A GOOD IDEA.—Mr. CHAS. W. WETHERWAX, Des Moines, Iowa, is circulating a petition among his fellow laborers in Iowa for their signature, the purpose of which is to ask the Legislature to pass a law requiring photographers to pay a license. Thus it is hoped to head off the "squatters" and keep up fair prices. Surely this protection should be had.

A NEW CLUB.—The Indianapolis Camera Club was organized November 25th. The society begins with the encouraging list of 23 active members. A constitution and by-laws were adopted and the following set of officers chosen for the term of one year:

*President.*—Thomas E. Hibben.

*Vice-President.*—Benjamin D. Walcott.

*Secretary.*—Carl H. Lieber.

*Treasurer.*—R. R. Bennett.

*Executive Committee.*—Charles McBride, J. D. W. Ashton, George S. Webster, Dr. J. R. Haynes, Charles Reitz.

THE valuable paper by Mr. A. J. TREAT hits the nail right on the head, and should be read over and over again.

In a letter which accompanies his paper, Mr. Treat says some things which are too good to lose and we add them here: "It has always been my belief that photography is a *fine art*, when used for the production of an ideal. I have held that its possibilities have not been appreciated by the average photographer. Certain difficulties will always prevent the divine "spark of genius" from making itself as manifest in our work as we see it in the work of the painter. We cannot with a stroke change a face from smiles to tears. The most enthusiastic "hypo" cannot hope to equal with his camera the canvas that has been upon the easel for years, but he can raise the quality of his work above the level to which vulgar commerce would assign it. The finest etchings, though ranking in the fine arts, cannot equal a noble painting. And so photography, in its perfection, will be placed among the fine arts, but as a lesser light."

A *History of Photography*, by Mr. W. JEROME HARRISON, F.G.S., is the latest issue of Scovill Manufacturing Company's series, and comes to us handsomely bound in cloth, gilt, price, \$1.00. Every lover of photography will possess it. Why? Not because the talented author has, by plodding through the not inconsiderable litera-

ture of our art, found out the parentage of photography and fixed upon the birthplace of its ancestors, any more than he could present the spot in the Garden of Eden where Adam and Eve stood when they looked down upon Satan—we beg his pardon—when they looked up into his eyes—but because Mr. Harrison has so woofed and woven the true lines of our history as to enable his publishers to present a volume which is as fascinating as the story of Aladdin's Lamp. And, indeed, all the fancies of Haroun Al Raschid put together, never sent more pleasure and more profit into the world than did the little gleam of light which crept by Baptista Porta, curdled his blood as it went, and yet revealed to him the camera obscura. Our art is well on to fifty years old, and it was high time that some patient person like Mr. Harrison began to collect the threads of its history and to shuttle them into good form for record. He has done his work charmingly, as the table of contents on another page reveals. The value of the volume is much enhanced by the appendix. There Dr. Maddox tells of the Discovery of Gelatino-bromide, and Mr. W. F. Lincoln Adams, editor of the *Photographic Times* gives a biographical sketch of Mr. Harrison.

THE "Triplex" picture introduced by Mr. ROCKWOOD has been "an immense take" as the saying goes. Mr. Rockwood has been driven with orders for specimens and requests for the instructions which he had printed. Mr. E. K. HUGH, Fredonia, N. Y., our esteemed art correspondent, writes: "The PHILADELPHIA PHOTOGRAPHER for November 19th just received, and I was surprised and delighted with Mr. Rockwood's new style of Triplex.

"The idea is so nearly in accord with my article this year for *Mosaics*, that it justifies me by showing the need I had recognized was real, and the time ripe for some such movement

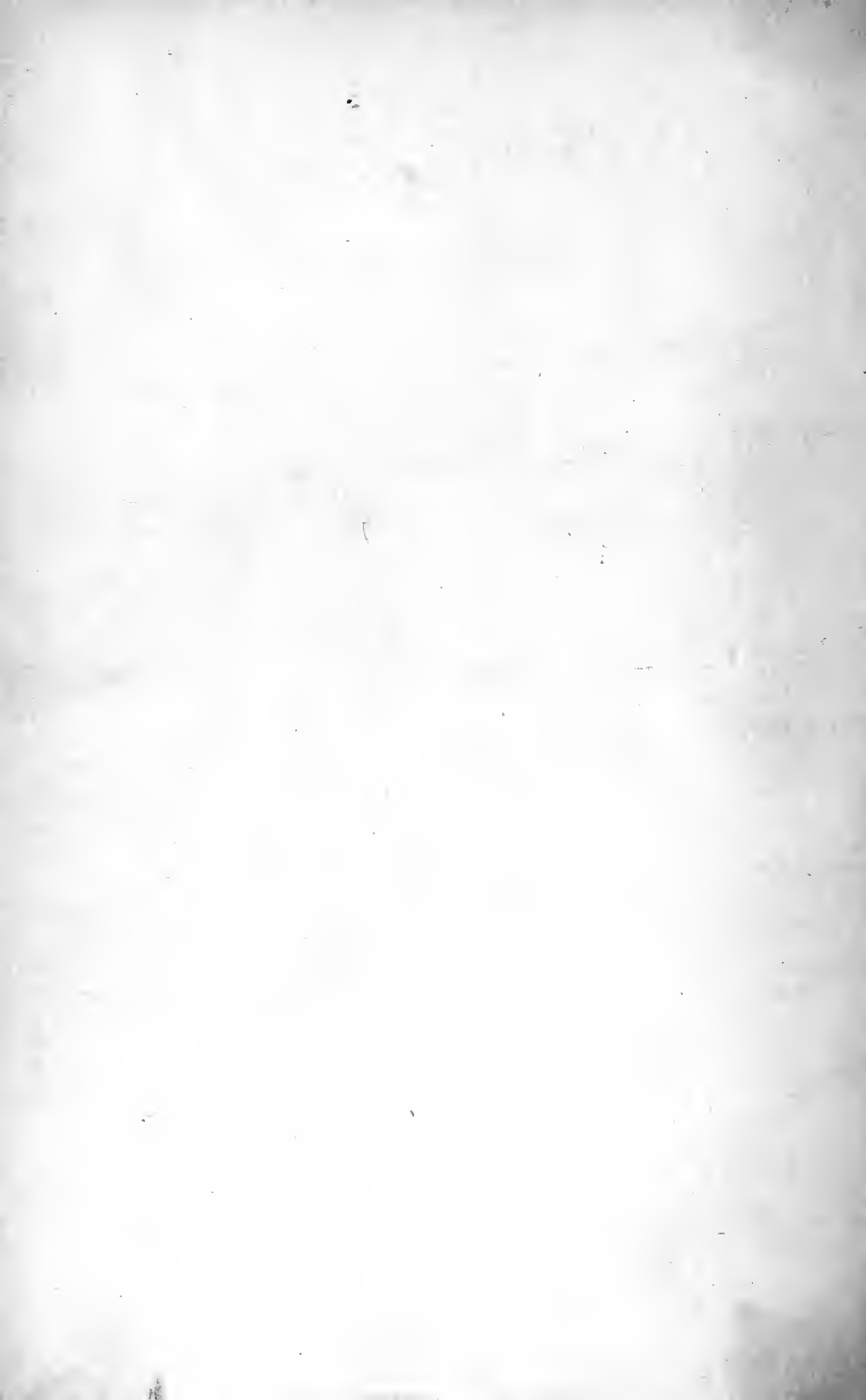
"It is generous for Mr. Rockwood to furnish working instructions free, and the new style is as fortunate in being introduced by him as the the Rembrandt was by Mr. Kurtz."

Mr. Rockwood's generosity cannot be questioned. Any one looking through our volumes will see that twenty-two years ago he began to give of his knowledge to the craft. He has carefully prepared and printed the "how" to triplex, and prefers that four specimens may accompany his instructions as suggestions. For these specimens he asks 50 cents each. Those who think they can do with one only, can be accommodated, by Mr. G. G. Rockwood, 17 Union Square, New York.











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